

The Thick billed Parrot (Rhynchopsitta pachyrhyncha)

in Southern Arizona.

Introduction.

In accordance with instructions I left Wilcox, Arizona in a Ford car on the morning of June 30, 1919, and travelled via Dos Cabezas to Pinery Canyon on the west slope of the Chiricahua Mountains, for the purpose of gathering information in regard to the extent of the recent invasion of the Thick-billed Parrot (Rhynchopsitta pachyrhyncha) and the economic status of this bird. In Pinery Canyon I made headquarters in camp at about 6500 feet. On July 2 I crossed the range over Mount Ida and through Barfoot Park to Paradise, at an elevation of 5500 feet, on the east side.

/I remained at Paradise overnight and returned to Pinery Canyon on July

3. On July 7 I proceeded to Light Arizona, and from there to Moores' Ranch at the base of the Swisshelm Mountains. The following morning I continued to the Mouth of Rucker Canyon and from there to Doanes' Ranch at 5500 feet altitude in Rucker Canyon.

On July 10 I climbed from Doane's Ranch to 9200 feet on Monte Vista and continued north to Square Peak along the crest of the Mountains. On the afternoon of July 12 I returned to the mouth of Rucker Canyon and on July 13 continued to Light and then to Pearce, on the Railroad. On July 15 I went to the Cochise Stronghold Ranger Station in the Dragoon Mountains, returning to Pearce on July 20. That same night I reached Douglas Arizona and remained there until noon July 22.

[Occurrence and Range.

[In Pinery Canyon Thick billed parrots were observed during the latest invasion by Mr. F. Hands on August 20, 1917. On this day he heard

a strange noise and, stepping to the door identified it as the calling of parrots, a sound that he had heard in other years. To verify his identifications he followed the sound and found six or eight of the birds feeding in a pine over a mile away. From this date the number of parrots in Pinery Canyon increased steadily until by September 1, about 300 were present. As cold weather came on during fall a part of the birds disappeared. Others remained during the entire winter although at one time the ground was covered by six inches of snow for over two weeks and the birds were forced to seek their food on the ground where this covering had blown partly away. The last were observed in Pinery Canyon on March 26 or 27, 1918 when a flock of ten or twelve was seen. The birds ranged here in Pinery and Pine Canyons and to a less extent in Bonita Canyon. According to O. C. Duffner of Paradise, none were found ^{at this time} in the canyons leading down on the eastern side at the north end of the Chiricahua range.

In Rucker Canyon Thick-billed Parrots were more abundant. According to Theodore Hampa the first arrived during the first week in July, 1917 (~~six weeks previous to their arrival in Pinery Canyon~~). A flock of fifty or sixty were noted first and the birds increased steadily until by early fall one thousand or possibly one thousand five hundred of the birds were present. They ranged on the slopes above the junction of Rucker and White water rivers, covering the high slopes of Monte Vista. Though the birds were at Hampa's Ranch at the junction of the two rivers mentioned above early in July, Fred Heine who lived a mile below did not observe them at his place until late in August although the difference in altitude between the two points was slight. The birds remained throughout the winter though they wandered much and occasionally were not observed

for a week at a time. By November they had decreased somewhat in number but a few remained through until March, 1918.

The birds were said to range into Price Canyon on the eastern side of the range but were not reported from other nearby localities.

In the Dragoon Mountains W. J. Wain informed me that a considerable flock of parrots arrived in Cochise Stronghold Canyon about the end of July or the first of August 1917, and remained for about six weeks. These birds were observed to fly directly out across the flats to the east and to return at night so that it is possible that they may have crossed to the Chiricahua Mountains to feed. Mr. Wain killed one and nailed it on the wall of a shed where it was examined by several persons who told me of it. This specimen however had been burned a few months previous to my visit.

Mr. T. Swift, Forest Supervisor of the Crook National Forest, at Safford, Arizona told me that in 1918 one of his rangers reported parrots in Rattlesnake Canyon at the northern end of the Galluro Mountains west of the Graham Range. About one hundred and fifty ~~of the birds~~ appeared about the middle of May and remained through the summer until early fall. The birds ranged here in an area covered with new growth Yellow pine.

Stockmen had also reported to Mr. Swift that in former years parrots had appeared occasionally in the southern end of the Graham mountains.

R. Winkler who resides near the mouth of Rucker Canyon said that parrots had been seen by his son above Deer Creek on Animas Peak in south western New Mexico.

According to newspaper report parrots were found by Fred Miller near Mowry in Santa Cruz County, Arizona in September 1917. John Deegan

Sheriff of Nogales was also said to have seen them.

Apparently the invasion of 1917-1918 covered a considerable part of ~~S~~outheastern Arizona and from the account given above it may be supposed that parrots at this time came into most of the mountain ranges as far west as Santa Cruz County at least. The record cited for the Galiuro mountains seems to be the farthest point north at which these birds have occurred while the note from the Dragoon mountains constitutes a new record for that range.

~~Feed and Economic Status.~~

On their arrival in the Chiricahua Mountains ~~Thick-billed~~ parrots began to feed on the cones of the Chihuahua Pine (Pinus chihuahuana) and continued to eat the seeds of this tree until the entire crop had been consumed. In Rucker canyon at the time of my visit the ground under many trees was still covered with cones ~~that~~ from which the seeds had been extracted. ~~Samples of this work were secured.~~ The parrots pulled, cut or twisted off the heavy scales so that the fibres remaining gave the cone the appearance of having been shredded more or less completely. The cones were attacked as soon as the seed was in the dough. Occasionally I found cones of a yellow pine (Pinus brachyptera) that showed signs of the same work but such instances were rare so that apparently the parrots had not ~~carried~~ for the long heavy cones of this tree. It is ^{probably} ~~probable~~ that ease in handling was one basis for the preference for the chihuahua pine. According to Sadworth[✓] cones of the Chihuahua pine

✓ U. S. Dept. Agr., Bull. 460, The Pine Trees of the Rocky Mountain Region, p. 37.

are matured in September so that the birds must have begun eating these

seeds while they were still quite soft.

During previous invasions (1904) parrots were said to have eaten pinyon nuts but were not known to have done this in 1917 and 1918. Two species of this group occur here in fair numbers, the Mexican Pinyon (Pinus cembroides) and the Pinyon (Pinus edulis).

When the harvest of pine cones was completed the Thick-billed parrots turned their attention to an abundant crop of acorns and these formed their food through fall and winter. The birds fed at first in the trees and then later descended to feed on the ground in search of fallen nuts. At least four species of oaks are common here and all probably furnished food for these birds. The white-leaf oak (Quercus hypoleuca) abundant on the upper slopes (low transition and high upper sonoran) has a very sweet acorn. The Arizona oak (Quercus arizonica), Quercus reticulata and Quercus grisea covered extensive areas.

According to various newspaper accounts the Thick-billed Parrot had come in flocks into fields of feterita/ and kaffir corn, and had fed in them extensively. ~~Such statements were current outside the range of the parrots~~ and it was also said that they ate corn. Careful inquiry however among the ranchers in the Chirichua mountains showed these statements to be groundless and that the food of the birds as stated above was made up entirely of pine seeds and acorns. In Pinery Canyon ^{Mr.} F. Hands said that the parrots fed constantly in oaks bordering fields of corn and small grains, coming to the borders of the clearings, but never attacking or injuring the crops in any way. The same statement was made by other ranchers here and farther south. F. Heine in Rucker canyon said that when the birds reached his ranch apples were still on the trees in his orchard. He watched the feeding habits of the parrots with

much interest for this reason but though they came about the place none offered to injure the fruit.]

In the pines the cones were apparently pulled off and then eaten, probably while being held in one foot. (This, if true, would explain why the long, heavy cones of the Yellow Pine were not often molested). As the stems supporting the cones fracture easily no injury resulted when they were pulled off. Nor did the parrots do harm to the tender new shoots of growing twigs. The destruction of the seeds of the pines was rather complete but in the light of evidence to the contrary cannot be held to have been a bar to the propagation of new trees as jays, doves, various rodents and other animals that secure the fallen seeds may be considered as factors of equal value should such be true. There cannot have been complete destruction of seed as Band-tailed Pigeons during the first half of July 1919 were feeding extensively on last years seed picked up under yellow and chihuahua pines.

[General Notes.

According to all accounts Thick-billed Parrots gathered at night to roost in flocks and then spread out in small bands from these places to feed during the day. In Pinery canyon the birds roosted somewhere on the upper mountain slopes during summer and fall. Morning and evening they were seen in two large flocks. As the weather became colder the roosting place was changed to one at a lower altitude. In Rucker canyon the birds came at night to the mountain side above the site of old Camp Rucker. As there were a thousand or more here their morning and evening flights were quite impressive. In the Dragoon Range the parrots roosted somewhere near the head of Cochise Stronghold mountain and made a morning flight that often carried them directly out

over the plains to the east. ~~How far they went is not certainly known.~~

In the Chiricahua Mountains during late fall and winter the birds came down into the foothills to an altitude of between 5,000 and 5,500 feet though earlier they were confined to the higher basins.

The birds were very noisy and their coming was heralded by their loud calls that were said to be readily audible at a distance of more than a mile. ^{like parrots elsewhere} They were said to show much fear of hawks (though it seems strange that a bird with so powerful a bill and so muscular a body should show such fear) so that when a red-tail or a hawk of some other species appeared they rose in flocks and circled in the air doubling the volume of their ordinary screeching calls.

In August when the birds first appeared in Pinery Canyon, Mr. Hands stated that he was certain from their plumage that many of them were young that had been hatched that year. At this season when the birds were feeding on pine cones the feathers of breast and head were often smeared with pitch. I have examined several specimens taken at this time in which the feathers were very dirty from this cause.

In feeding the large bands usually broke up into smaller parties. In winter such flocks at times came down to perch on broken sandstone ledges where they clambered about or basked in the sun. In Rucker Canyon toward evening flocks often flew down to the river to drink before passing on to their roost.

In Pinery Canyon according to the best information available about seventy-five or possibly one hundred parrots were killed. Probably half of these found their way into collections of bird skins while the remainder were sent to Chandler Bros., in El Paso, and Colburn, Los Angeles, (Taxidermists). In Rucker Canyon where the birds were

most numerous not more than half a dozen were destroyed: these were killed by hunters through curiosity.

Though parrots apparently remained through the summer in the Galiuro Range, whether they bred there or not is uncertain. From available accounts the birds in Mexico nest usually in abandoned nesting holes of the Imperial woodpecker (Campephilus imperialis). Suitable nesting cavities for these parrots could be found in large pines in our mountains but are not common. The date of arrival of the Thick-billed Parrot in 1917 seems remarkably early as Thayer * records nests

*Auk, 1906, pp. 223-224.

containing eggs or small young near Colonia Pachacho and Colonia Garcia, Chihuahua from August 11 to August 28, 1905 and Bergtold * secured partly

*Auk, 1906, pp. 428.

fledged young near Parral on Oct. 5, 1904. From these dates it would seem that there is some variation in the time of nesting, as the parrots arrived in the Chiricahuas at a time when they had been breeding during other years.

According to local accounts it seems that the present invasion of parrots is the largest and most extended of which there is any record. In 1904 a small number came in during late summer and ranged on Turkey Creek Canyon above Paradise (on the eastern slope) and on Cave Creek Canyon. According to A. P. Smith * they were observed in Bonita Park

*Condor, 1907, p. 104.

near Cochise Head in August, 1904. Others were reported in 1902 according to O. C. Duffner of Paradise. The species was first definitely re-

ported for the United States by R. D. Lusk ¹⁵ on the basis of specimens

¹⁵ Condor, ⁹ 100, p. 129.

though it had been known that parrots came here at irregular intervals taken about the middle of June that year near Barfoot Peak. Early settlers and residents in this region had noted them on various previous occasions. Mr. F. Hands believed that the birds usually ^{came into the Chiricahua Range} during years in which there is a shortage of rain.

Summary.

During the first week in July, 1917 Thick-billed Parrots were observed in Rucker Canyon in the Chiricahua Mountains and on August 20 they appeared in Pinery Canyon. The birds increased in number until in September there were at least one thousand in the first locality and about three hundred in the second. Others were found in the Dragoon Range. In the Chiricahuas the birds remained until the end of March, 1918. ^{Parrots} ~~Others~~ were found from May until fall, 1918 in the Galiuro Range west of Klondyke.

It was reported that the birds had been of considerable damage to corn, Kaffir corn and feterita but upon investigation these were found to be newspaper stories for which no basis in actual fact could be secured. On their arrival the birds fed on the cones of the Chihuahuahua Pine. ^{later} ~~But~~ when these were gone they ate the acorns produced by several species of oaks. Though parrots often came into trees bordering clearings containing cultivated fields or orchards there was no record of their feeding upon any product of these crops. Nor did it

appear that their activities were in any way injurious to the pines or other trees that they frequented.

Data of interest on the habits of this parrot was secured as well as information, as to its occurrence in former years.

From all that could be learned it is considered that the Thick-billed Parrot as regards its economic status is a harmless species.]

Aug. 12, 1919.

A. Wetmore.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

August 1, 1919.

Mr. Alex Wetmore,
Assistant Biologist,
Bureau of Biological Survey,
Washington, D. C.

Dear Sir:

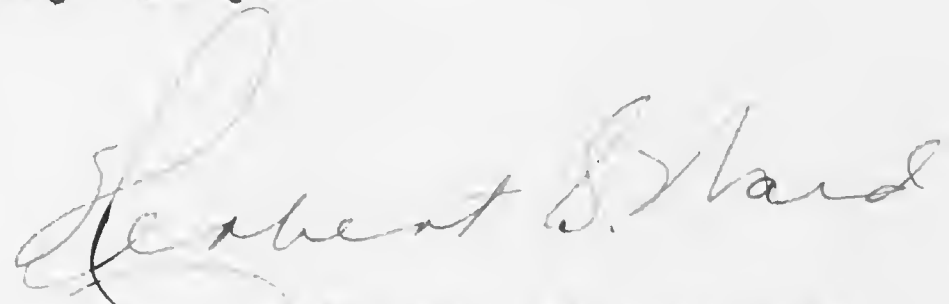
In the examination of your reimbursement account for the period July 1 to 26, inclusive, under letter of authorization No. 84 Bi, the following differences are noted:

July 21 - Excess subsistence \$0.70

Disallowed,	Breakfast	-	\$.85
	Dinner	-	.80
	Supper	-	.80
	Waiter's fee-		.20
	Lodging	-	1.50
	Laundry	-	<u>1.55</u>
			\$5.70

Amount claimed-	-	\$89.29
Differences noted-		<u>.70</u>
		\$88.59

Yours very truly,



In Charge of Accounts.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

July 24, 1919.

Mr. Alex Wetmore, Biological Ass't.,
Biological Survey, Washington, D.C.

Dear Sir:

In the examination of your reimbursement account for the
period May 15 to June 30, under letter of authorization No. 609-Bi,
the following differences are noted:

June 1 - Excess subsistence - - - - - \$1.05

Disallowed. The items are:

Breakfast - - - -	\$1.15
Dinner - - - -	1.20
Supper - - - -	1.30
Waiter fees - - -	.30
Hotel porter - - -	.10
Lodging - - - -	<u>2.00</u>
Total - - - -	\$6.05

June 22 - Excess subsistence - - - - - .10

Disallowed. The items are:

Breakfast - - - -	\$1.05
Dinner - - - -	1.00
Supper - - - -	.75
Waiter fees - - -	.20
Porter (hotel)-	.10
Lodging - - - -	<u>2.00</u>
Total - - - -	\$5.10

June 23 - Excess subsistence - - - - - .85

Disallowed. The items are:

Breakfast - - - -	\$.65
Dinner - - - -	.80
Supper - - - -	.75
Laundry - - - -	1.65
Lodging - - - -	<u>2.00</u>
Total - - - -	\$5.85

June 30 - Additional expense incurred on account of
stop-over enroute - - - - - -3.20

Disallowed.

The account indicates that you purchased transportation as follows:

T.R. 473301 - Washington, D.C. to Lawrence, Kansas, R.R. fare -	\$36.71
T.R. 473303 - Lawrence, Kansas, to Phoenix, Arizona, R.R. "	46.89
Total - - -	\$83.60

The through railroad rate from Washington, D.C. to Phoenix, Arizona, is - - - - -	\$80.90
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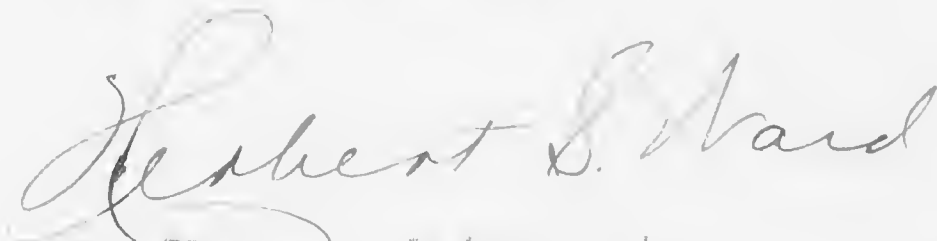
Overcharge, account stop-over, R.R. fare - - - - -	\$ 2.70
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T.R. 473302, Washington, D.C. to Lawrence, Kansas, Pullman - -	\$ 7.50
T.R. 473304, Lawrence, Kansas, to Phoenix, Arizona, Pullman - -	8.25
Total Pullman - - -	\$15.75

Through Pullman rate - - - - -	\$15.25
Overcharge, account stop-over - -	\$.50

Amount claimed - - -	\$169.57
Differences noted - -	5.20
Approved for - - -	\$164.37

Yours very truly,


In Charge of Accounts.

DOLLARS

2 3 4 5 6 7

8 9 10 20 30 40 50

CENTS

1 2 3 4 5 15 20 25 30 35 40

45 50 55 60 65 70 75 80 85 90 95

United States Railroad Administration
PULLMAN CAR LINES

PASSENGER'S CASH FARE CHECK.

2 25 19

Y 52483

CAR

LINE

Changed
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Passengers

Date

191

Drawing
Room ★Seat
No. ★ACCOMMODATIONS NOT TRANSFERABLE.
PROPERTY TAKEN INTO CAR WILL BE AT OWNER'S RISK.

Spizastus
coronatus

E.R.K.

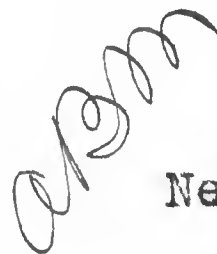
Day Rush

Washington, D. C.

July 21, 1919.

Alex. Wetmore,
Gadsden Hotel, Douglas, Ariz.

No further field work planned return Washington.



Nelson.

CONFIRMATION OF TELEGRAM.

E.R.K. : L.J.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

Phoenix, Arizona
July '8, 1919.

Dear Mr. Wetmore,

Immediately after your last letter, I forwarded a telegram to Pearce. If I remember correctly, it was worded something like this, - "Continue field operations - Nelson." I have forwarded one letter marked "personal" to your present address.

Very truly yours,

Lillian Maudslayi

Day Rush.

Washington, D. C.

July 15, 1919.

Alex. Wetmore,
Box 765, Phoenix, Ariz.

Can proceed with regular travel and former activities.

alpm

Nelson.

CONFIRMATION OF TELEGRAM.

E.R.K. : L.J.D.

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

RECEIVED AT

US B 20 GOVT 5 EX

WA WASHINGTON D C 12 VIA PHOENIX ARIZONA JULY 14 1919

ALEX WETMORE

PEARCE ARIZONA

AGRICULTURE APPROPRIATION BILL VETOED SUSPEND ALL EXPENDITURES
UNTIL FURTHER NOTICE.

NELSON

1128AM JULY 14

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

July 11, 1919.

Dr. Alex Wetmore,
P. O. Box 765,
Phoenix, Arizona.

Dear Dr. Wetmore:

I take pleasure in advising you that the Secretary has approved my recommendation and certified your name to receive the \$240 per annum increased compensation provided by Act of Congress for the fiscal year 1920, to take effect July 1, 1919. Your next check will, therefore, include the increased compensation in addition to your regular salary.

Very truly yours,


Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

July 8, 1919.

Mr. Alex Wetmore,
Assistant Biologist,
c/o L.E. Musgrave,
Phoenix, Arizona.

Dear Sir:

In reply to your letter of June 29, which has been referred to my office, regarding the payment of your salary during your absence:

You are advised that your salary for the first fifteen days in June, which you state you have not received, was paid by check June 15, D.O. Voucher 202665, mailed to 1823 Mass. Ave., Lawrence, Kansas, in the sum of \$87.50, this address being the best obtainable.

Your salary for the last half of June was paid June 30 Voucher 4922, by check mailed to Box 765, Phoenix, Arizona, c/o L.E. Musgrave, in the sum of \$87.50. I would suggest, therefore, that if you have not yet received check in payment for your salary for the first half of June, that you take the matter up with the Postmaster at Lawrence, Kansas, furnishing him proper forwarding address.

Your name will be carried on the rolls, as per your request, but in the future checks will not be mailed until I receive advice from you as to address to which you wish them sent.

Yours very truly,

Herbert S. Ward

In Charge of Accounts.

Form 4 b. USE ONE SIDE ONLY.

Approved by the Comptroller of
the Treasury May 28, 1914.

No. _____

Subvoucher for Supplies, Livery and Miscellaneous Services,
and Expenses.

U. S. Department of Agriculture,

To _____, Dr.

Address: _____

_____, 191 .

For

3 gal. gasoline	1	08
1 gal. zeroline oil	1	00

TOTAL, - - - - - \$ 2 08

TO BE COMPLETELY FILLED IN BEFORE SIGNATURE BY PAYEE, AND THERE
MUST NOT BE ANY ERASURE OR OTHER ALTERATION WHATEVER,

RECEIVED IN CASH this 7th day of

July, 1919, from

Alb. Wetmore

Two & 08/100 Dollars, in full

of the above account, which I CERTIFY TO BE CORRECT.

Do not sign in duplicate.

(Signature)

(Title)

Witness to signature by mark.

(Name.)

8-2707

(Address.)

Form 4b.

SUBVOUCHER FOR MEALS AND LODGING.

Approved by the Comptroller of the Treasury
May 28, 1914.

No. _____

\$ _____

City or Town, _____

To be completely filled in before signature by payee,
and there must not be any erasure or
other alteration whatever.

Name of Hotel, _____

Date _____, 191____

RECEIVED IN CASH OF _____

U. S. DEPARTMENT OF AGRICULTURE _____ and _____ Dollars,
100.

for MEALS and LODGING from _____, 191____, to

_____, 191____, inclusive.

Time covered, _____ day____, at \$ _____ per day.

If charge for fractional part of day is greater in
proportion, it must be explained HEREUNDER.

I certify the foregoing to be correct.

(Signature) _____

(DO NOT SIGN IN DUPLICATE.)

(Title) _____

USE ONE SIDE ONLY.

LIGHT, ARIZONA

M

Address

brush-	30
P. 4. 1/2	30
P. 1/2	40
sp. 1/2	20
1/2	10
sp. 1/2	25
	<u>155</u>

Paul

14

UNITED STATES DEPARTMENT OF AGRICULTURE

Bi-356.
JUNE, 19

BUREAU OF BIOLOGICAL SURVEY
WASHINGTON, D. C.

No. 24- Bi.

LETTER OF AUTHORIZATION.

July 1, 1919.

Alex Wetmore,

Assistant Biologist.

Under authority conferred upon me by the Secretary of Agriculture (L. A. No. 8-Sec., dated July 1, 1919), you are hereby authorized to incur expenses as follows during the fiscal year 1920 in the performance of your official duties under the appropriation "General Expenses, Bureau of Biological Survey, 1920,"

(Food Habits of Birds and Mammals).

1. Actual and necessary traveling expenses of yourself and your assistants between official stations and points throughout the United States.
2. Hire of temporary assistants, subject to civil-service rules.
3. Station and miscellaneous expenses as defined in paragraphs 71 and 72, Fiscal Regulations.
4. Such other miscellaneous expenses as may be necessary to the proper conduct of the work of the Bureau.
5. Preparation and issuance of Government bills of lading for shipments of United States property by rail or water.

6. You will be reimbursed for necessary repairs to your own firearms, if damaged while being used for official purposes, as a consideration for their use.

Object of Travel: Study of Food Habits of Birds and Mammals.

Travel entirely outside of the United States

must be under instructions from the Chief of Bureau. You will be allowed actual and necessary traveling expenses, and subsistence expenses not to exceed \$5.00 per day, while absent from your official headquarters on official business.

Actual and necessary traveling and subsistence expenses incurred by your assistants under instructions from you will be paid to them upon presentation of Form-4 accounts and charged against your allotment and letter of authorization. Accounts under this authorization will be paid from the sums allotted to you for the fiscal year 1920.

All expenditures hereunder must be made in strict conformity with law, the Fiscal Regulations of the Department of Agriculture, orders of the Secretary, and decisions of the Comptroller of the Treasury.

Your permanent headquarters will be

Washington, D. C.

W. C. Henderson

Chief of Bureau.

Chief Clerk and Executive Assistant

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

July 1, 1919.

Dr. Alexander Wetmore, Assistant Biologist,
C/O M. E. Musgrave,
Box 765, Phoenix, Arizona.

Dear Dr. Wetmore:

Replying to your letter of June 18, 1918, relative to Bulletin 793:

The page proof came today and the corrections indicated by you have been made, and your requests regarding comparison with the original manuscript complied with. We are returning the proof today and I trust the bulletin will appear shortly.

Very truly yours,

Wm. H. Cheesman

In Charge Editorial Work.

By BMY.

ret 722-19

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

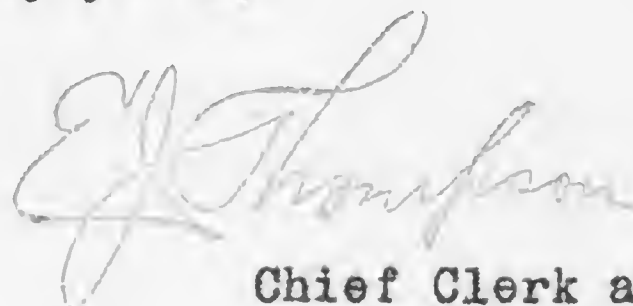
ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

July 1, 1919.

MEMORANDUM TO REGULARLY APPOINTED BUREAU EMPLOYEES TO ACCOMPANY
QUESTIONNAIRE REQUIRED BY HOUSE RESOLUTION 66.

The information called for by the accompanying questionnaire has been requested of the Secretary of Agriculture by the House of Representatives, and is asked for at the earliest date practicable. All employees are expected to fill out and return one of these forms direct to the Bureau with the least delay possible. Employees in charge of State projects or districts are being furnished a supply for distribution to hunters or laborers employed by them, and these should be distributed with instructions to fill out, sign, and return direct to the Bureau. A list of these employees should be furnished me by State or district leaders. Penalty envelopes addressed to the Bureau can be furnished these employees for use in mailing the questionnaires.

Very truly yours,



Chief Clerk and
Executive Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

June 30, 1919.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

Dr. Alex. Wetmore,
% M. E. Musgrave, Box. 765,
Phoenix, Ariz.

My dear Wetmore:

Official use of my collection of local names
is proposed according to the plan mentioned in the accom-
panying letter. Won't you please fill out the attached
schedule giving me the benefit of whatever unusual local
names of the birds concerned you are acquainted with.

Very truly yours,

A handwritten signature in cursive script, reading "W. L. McAtee".

Assistant Biologist.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

E-B
Names

Dear Sir:

For the benefit of sportsmen in general, of other interested persons, and of game wardens and game-law administrators, and for use in courts, the Biological Survey plans to issue a compilation of the vernacular names of migratory game birds. The publication will include both general and local names, and since the latter are so numerous and diverse, and in some cases are restricted in use to very limited areas, the Survey is seeking cooperation in all parts of the United States in making the list as complete as possible.

We shall appreciate it very much if you will record on the inclosed circular any local names of birds with which you may be acquainted, with notes on the locality where used, if not that entered at the head of the list. If unable to fill out the circular yourself, please hand it, if possible, to someone who can. The circular may be returned post-free in the inclosed envelope.

Very truly yours,



Chief of Bureau.

Bi-354a.

Day Rush.

Washington, D. C.

June 27, 1919.

Alex. Wetmore,
Safford, Arizona.

Investigate parrot invasion as to season, area covered
damage done. Dove report received. Aux shells expressed care
Musgrave.

WBN
Nelson.

CONSERVATION OF TELEGRAM

W.L.M. : Du.

Day Rush

Washington, D. C.

June 26, 1919.

Alex. Wetmore,

Safford, Ariz.

Wire Mail Address.

apm

Nelson.

CONFIRMATION OF TELEGRAM.

W.L.M. : Du.

7/16/19.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

June 25, 1919.

Mr. Alexander Wetmore,

Phoenix, Arizona.

Dear Mr. Wetmore:

Prof. Cooke prepared a Route Map for the Birds of New Mexico, showing the field trips made by wagon or pack outfit by members of the Biological Survey in New Mexico, and to this we want to add your routes. Please plot them on the enclosed base and return as soon as possible as I want to send down the MS early in August.

Sincerely yours,

Homer Merriam Bailey.

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF ARIZONA

UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF
AGRICULTURE COOPERATING

EXTENSION SERVICE

COUNTY AGRICULTURAL AGENT WORK
COUNTY HOME DEMONSTRATION AGENT WORK
BOYS' AND GIRLS' CLUB WORK
LIVESTOCK EXTENSION
EGYPTIAN COTTON EXTENSION
HORTICULTURAL EXTENSION
RODENT PEST CONTROL
FIELD ENTOMOLOGIST
APICULTURIST
FARM LABOR SPECIALIST
POULTRY SPECIALIST

TUCSON, ARIZONA

June 24 1919

Mr. C. R. Adamson,
County Agricultural Agent,
Cochise County,
Willcox, Arizona.

My dear Mr. Adamson:

This will introduce Mr. Alexander Wetmore, Specialist in Birds, representing the U.S. Biological Survey. Some of the agents have recently reported either injury or have reported upon birds in connection with agriculture and if you can give Mr. Wetmore any information of this kind he will greatly appreciate it and he is also in a position to give you data concerning the control of noxious birds.

Any courtesy shown Mr. Wetmore will be appreciated.

Very truly yours,


Extension Director

EPT-H

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L
If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.	

WESTERN UNION



TELEGRAM

NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L
If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.	

RECEIVED AT

205GSBF 31 GOVT

A WASHINGTON DC 111P JUNE 20 1919

ALEX WETMORE

CAYE M-E MUSGRAVE PHOENIX ARIZ

CONTINUE INVESTIGATION BIRD DAMAGE TO FRUIT AFTER LOCATING FAVORABLE
 PLACE WIRE SHIPPING ADDRESS AUX SHELLS BEING LOADED BINOCULARS
 MIXED RETURNED FACTORY

NELSON

1140AM

6/20/19.

Forward aux shells Tucson. ~~Can cancel~~ Shall not need
~~one~~ do one hundred dollars present authorization.
Continue mail care Musgrave Phoenix.
Proceed Tucson Sunday.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY
WASHINGTON, D. C.

Day

Washington, D. C.

June 20, 1919.

Alex Wetmore,
c/o E. E. Nugrove,
Phoenix, Arizona.

Continue investigation bird damage to fruit. After locating favorable
place wire shipping address, six shells being loaded. Binoculars
mixed, returned factory.

W. B. M.
WILSON.

CONFIRMATION OF TELEGRAM.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

Telegram June 18

~~Present~~ Investigation White winged dove completed about
twentyfirst. Recommendation for permits not required
this season. ~~But~~ Bull's wheat already threshed.

Proceed Tucson Sunday. ^{if not} Forward Field glasses,
Auxiliary Shells Tucson. ^{immediately} Continue mail Phoenix.

~~At this time if work requires necessary to~~
~~complete work will~~

~~Advise by~~ Wire Phoenix if funds will permit
fruit investigation must ~~be terminated~~ to permit
my arrival Washington before July ~~30~~ one.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

June 13, 1919.

Dr. Alexander Wetmore,
% M. L. Musgrave,
Box 765, Phoenix, Ariz.

My dear Wetmore:

We have just received from E. P. Taylor, Director of Extension Work, Tucson, Arizona, a letter indicating that damage by fruit-eating birds is still being experienced and that relief is desired. If possible you should get in touch with Mr. Taylor and investigate the complaint. Request is for the poison formula used by Holt, but it is inadvisable to give this out until permits for aggressive action against the migratory birds concerned are issued. Whether permits are issued will depend upon your findings and recommendations. Kalmbach has just returned from Louisiana and reports a very interesting and very successful trip.

Sincerely yours,

W. R. Mearns

Assistant Biologist.

ret. 6-18-19.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

June 12, 1919.

Dr. Alexander Wetmore,
C/O Mr. M. E. Musgrave,
Box 765, Phoenix, Arizona.

Dear Dr. Wetmore:

I enclose herewith galley proof of your bulletin 793 on Lead Poisoning in Waterfowl. If you will make any necessary corrections and return it promptly, we will be able to incorporate them in the page proof when it arrives. It is deemed best to return the galley proof to the printer with typographical errors corrected in order to have as much of the work charged against this year's appropriation as possible.

Very truly yours,



In Charge Editorial Work.

Inclosure 2778.*

6-12-19.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

June 7, 1919.

Dr. Alexander Wetmore,
% M. E. Musgrave, Box 765,
Phoenix, Ariz.

My dear Wetmore:

Inclosed are two communications from the Bausch & Lomb Optical Co., which I have taken liberty of opening, knowing that you desire to get your glasses as soon as possible. It would seem that they have not carried out the understanding you had with them before leaving Washington. The best thing to do now probably is to send them your check and instruct them to forward the glasses by express collect or ask them to deliver here for the Biological Survey to ship.

Gardner's appointment for three months beginning June 16, has just been received. With best wishes for success in your work I am,

Sincerely yours,

W. R. Mearns

No. — 6

STATE OF ARIZONA

GAME AND FISH DEPARTMENT

PERMIT TO SHIP GAME OR FISH OUT OF THE STATE

THIS IS TO CERTIFY, That *Alexander Wetmore* resident of
Washington D.C. State of *Biological Survey* and holder of permit

No. *12* is hereby granted the right to ship from the state of Arizona,
by any common carrier, with *any* permit attached, the following:

Number *Not Limited* Variety *Not Limited*

Consigned to *either Bureau of Biological Survey or*
National Zoological Park. Washington D.C.

Issued by *Joe V. Prochaska* Deputy at *Phoenix Ariz.*

Dated

June 6th 1919

JOE V. PROCHASKA,
State Game Warden.

Not Transferable

This permit Expires Dec 31 - 1919

STATE OF ARIZONA

Game and Fish Department

PERMIT TO SHIP GAME OR FISH OUT OF THE STATE

THIS IS TO CERTIFY, That.....resident of

.....State of.....and holder of permit

No. *6* is hereby granted the right to ship from the State of Arizona,
by any common carrier, with this permit attached, the following:

Number....., Variety.....

Consigned to *National Zoological Park*
Washington D.C.

Issued by *Joe V. Prochaska* Deputy at *Phoenix Ariz.*

Dated.....


JOE V. PROCHASKA,
State Game Warden

Not Transferable

STATE OF ARIZONA

GAME AND FISH DEPARTMENT

PERMIT TO SHIP GAME OR FISH OUT OF THE STATE

THIS IS TO CERTIFY, That Alexander Wetmore resident ofWashington D.C. State of Biological Survey and holder of permitNo. 12 — is hereby granted the right to ship from the state of Arizona,
by any common carrier, with  permit attached, the following:Number any. Not Limited Variety any. Not limited.Consigned to either Bureau of Biological Survey or
National Zoological Park. Washington, D.C.Issued by Joe V. Prochaska
Deputy at Phoenix Ariz.Dated June 6th 1919

Not Transferable

JOE V. PROCHASKA,
State Game Warden.This permit Expires Dec 31 - 1919

STATE OF ARIZONA

Game and Fish Department

PERMIT TO SHIP GAME OR FISH OUT OF THE STATE

THIS IS TO CERTIFY, That.....resident of

.....State of.....and holder of permit

No. 6 is hereby granted the right to ship from the State of Arizona,
by any common carrier, with this permit attached, the following:

Number....., Variety.....

Consigned to National Zoological Park
Washington D.C.

Issued by Joe V. Prochaska
Deputy at Phoenix Ariz.

Dated.....

JOE V. PROCHASKA,
State Game Warden

Not Transferable

IMPORTANT NOTICE TO EXPRESS MESSENGERS.

Charges for the transportation of animals for the NATIONAL ZOOLOGICAL PARK, properly boxed and in good condition when shipped, are guaranteed at destination, but animals MUST NOT BE VALUED AT A HIGHER RATE THAN THAT ALLOWED BY EXPRESS COMPANIES WITHOUT ADDITIONAL CHARGE FOR VALUATION. Shipper should consult express agent as to this. Charges on account of valuation are not guaranteed.

N. HOLLISTER,
SUPERINTENDENT.

LIVE ANIMALS
FOR THE
NATIONAL ZOOLOGICAL PARK,
WASHINGTON, D. C., U. S. A.

WATER AND FEED AS DIRECTED. Do not place near steam pipe
nor in draft, and do not smother with other packages.

From

NATIONAL ZOOLOGICAL PARK.
DIRECTIONS FOR FEEDING AND CARE.

TO EXPRESS MESSENGERS: If the directions require the purchase of food, you are authorized to make such purchases, and let the charges follow shipment, with receipt for each expenditure.
N. HOLLISTER, SUPERINTENDENT.

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TO EXPRESS MESSENGERS: If the directions require the purchase of food, you are authorized to make such purchases, and let the charges follow shipment, with receipt for each expenditure.

N. HOLLISTER, SUPERINTENDENT.

pd 6-11-19

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

Phoenix, Ariz.,
June 5, 1919.

Mr. Alex Wetmore,
Buckeye, Ariz.

Dear Mr. Wetmore:

I am enclosing the copies as requested by you. An attempt was made the night I received the letter, to have the copies made at once, but the girl was not there at the time and it had to be put off until to-day.

The charges are \$1.20, payable at your convenience.

Very truly yours,

Lillian Maudsl,
Clerk.

encs

LM/PB

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY
WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

May 31, 1919.

MEMORANDUM FOR DR. WETMORE.

Dear Dr. Wetmore:

I desire to advise you that the Assistant Secretary, Mr. Ousley, has approved for publication in The Auk, the following article by you:

"Observations on the Habits of Birds at Lake
Burford, New Mexico."

It is understood that no compensation will be accepted for this article.

The Bureau Editor should be advised of the date of publication.

Very truly yours,

E. J. Thompson
Chief Clerk.

ms. sent to Phila.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

May 31, 1919.

Dr. Alexander Wetmore,
c/o M. E. Musgrave,
U. S. Biological Survey,
Phoenix, Arizona.

My dear Wetmore:

I am glad to hear from you and especially to learn that there is at least one promising candidate for our work at Lawrence. Letter has been written to him today inviting him to make formal application for appointment. I do not know whether Householder will eventually be available for our work, but this matter can be taken up toward the end of his period of field work in Montana. Wrapping paper and a few of the recent issues of Science have been sent to you, c/o M. E. Musgrave. I am acting on your suggestion that an outfit for collecting insects be sent to Mark Hanna.

Very truly yours,

W. R. McAtee

Assistant Biologist.

Night Letter

Washington, D. C.

May 17, 1919.

Alexander Wetmore,
1823 Mass St.,
Lawrence, Kans.

Have you actual breeding experience as
basis Yearbook article on Redhead.


Nelson

CONFIRMATION OF TELEGRAM

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

May 14, 1919.

Mr. Alexander Wetmore,
Assistant Biologist,
Bureau of Biological Survey,
Washington, D. C.

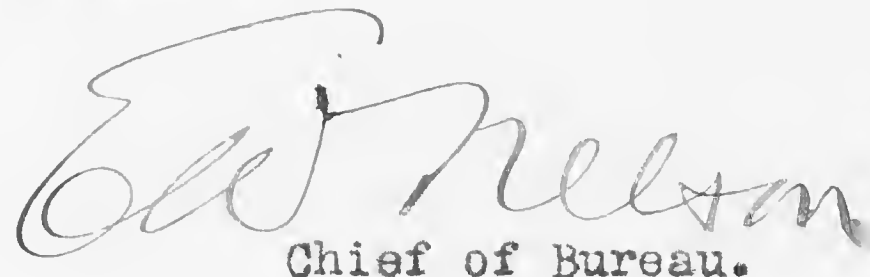
Dear Mr. Wetmore:

In accordance with the provisions of letter of authorization No. 609 Bi. you are directed to proceed to Arizona for the purpose of securing information on the food and economic importance of white-winged and mourning doves and other birds. For a number of years it has been claimed that doves flock in grain fields at the time of harvest and do a great amount of damage. This complaint has come especially from the vicinity of Phoenix. You should visit Phoenix and there get in touch with the State Game Warden and others who will have pertinent information and should carry on extended investigations into this matter in the field for the purpose of ascertaining whether it is necessary to issue permits under the Migratory Bird Treaty Act to allow these birds to be killed. The habits of these birds should be studied carefully, and any information bearing upon their distribution and movements noted.

If time permits you should attempt to gain information on claims of damage by birds to cultivated fruits in orchards that have been planted in the irrigated districts. In addition you should secure material in the shape of insects, seeds and berries for our reference collections as time will permit. Such material is always valuable as we do not have complete collections from that region. Upon completion of this work unless otherwise directed you should return to the Washington office.

With best wishes,

Very truly yours,


Chief of Bureau.

STATE OF KANSAS.

DEPARTMENT OF FISH AND GAME.

PERMIT FOR SCIENTIFIC OR PROPAGATING PURPOSES.

I, the undersigned, Fish and Game Warden of the State of Kansas, do hereby grant a permit to Alexander Wetmore of Washington D.C. ~~Kansas~~ County, for the following purposes and upon the following conditions only, to wit:

The kind and number of specimens to be taken:

Birds and mammals in reasonable numbers.

The manner of taking said specimens:

The manner and means of transporting said specimens and the places to and between which said specimens may be transported shall be stated on special shipping cards, and no shipment shall be made unless goods shipped be at all times accompanied by such special shipping card, to be issued by this department over the signature of the State Fish and Game Warden.

It is a condition of this permit, that any or all of the acts hereby allowed must be confined within the borders of the State of Kansas, and must be confined strictly and exclusively to scientific and propagating purposes; and in case of any violation of any of the conditions of this Permit, or of any of the provisions of the laws of the State of Kansas relating to fish and game, then this Permit shall be void and of no effect.

This Permit shall expire, unless forfeited for cause, on June 30, 19¹⁹~~15~~.

WITNESS my hand and seal of office at Pratt, Kansas, this 7th day of May, 1919.

[SEAL.]

5-21(8)

Alva Clapp

State Fish and Game Warden.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

LETTER OF AUTHORIZATION

No. 609-B1

Washington, D. C., May 6, 1919.

Alex. Wetmore

Assistant Biologist.

Under authority contained in the Secretary's letter, No. 8 Sec., dated ~~July~~ ^{Oct.} 1, 1918, you are hereby authorized to incur such expenses as may be necessary, in strict accordance with law, the Fiscal Regulations of the Department, and the decisions of the Comptroller of the Treasury, for the purpose stated and during the period named below, not to exceed

\$ 400.00 , to be paid from the appropriation "General Expenses, Bureau of Biological Survey, 1919," (Food Habits of Birds and Mammals).

To proceed from Washington, D. C., on May 12, 1919, or as soon thereafter as practicable, to Phoenix, Arizona, and to perform necessary travel in the State of Arizona and adjacent States for the purpose of securing information on birds and other animals, and their relation to crops and on methods of controlling injurious species, and to incur expenses other than travel for the hire of temporary assistants, (subject to the rules of the Civil Service Commission) and to pay for their transportation and subsistence while in a travel status, to hire special means of conveyance when necessary, to hire saddle horses and pack animals, to hire or purchase necessary camp equipment, to purchase field supplies and Natural History specimens, to pay for necessary repairs to your own fire arms if damaged while being used officially as a consideration for their use and to incur such other expenses as may be found necessary in carrying out this work.

Upon completion of this work return to Washington, D. C.


No expenses for freight charges to be incurred hereunder.

Your permanent headquarters will be Washington, D. C.

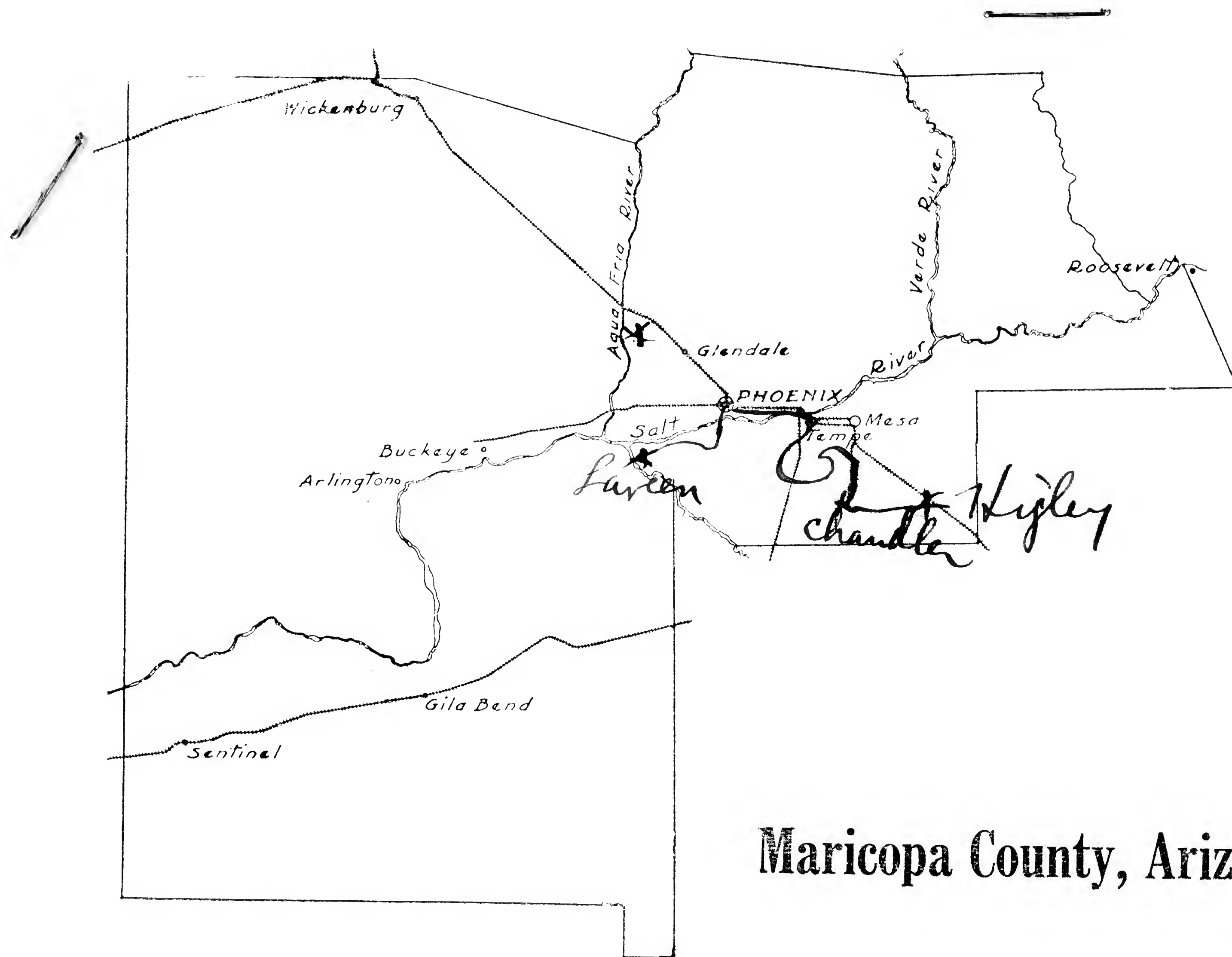
A true copy:


Chief Clerk and Executive Assistant

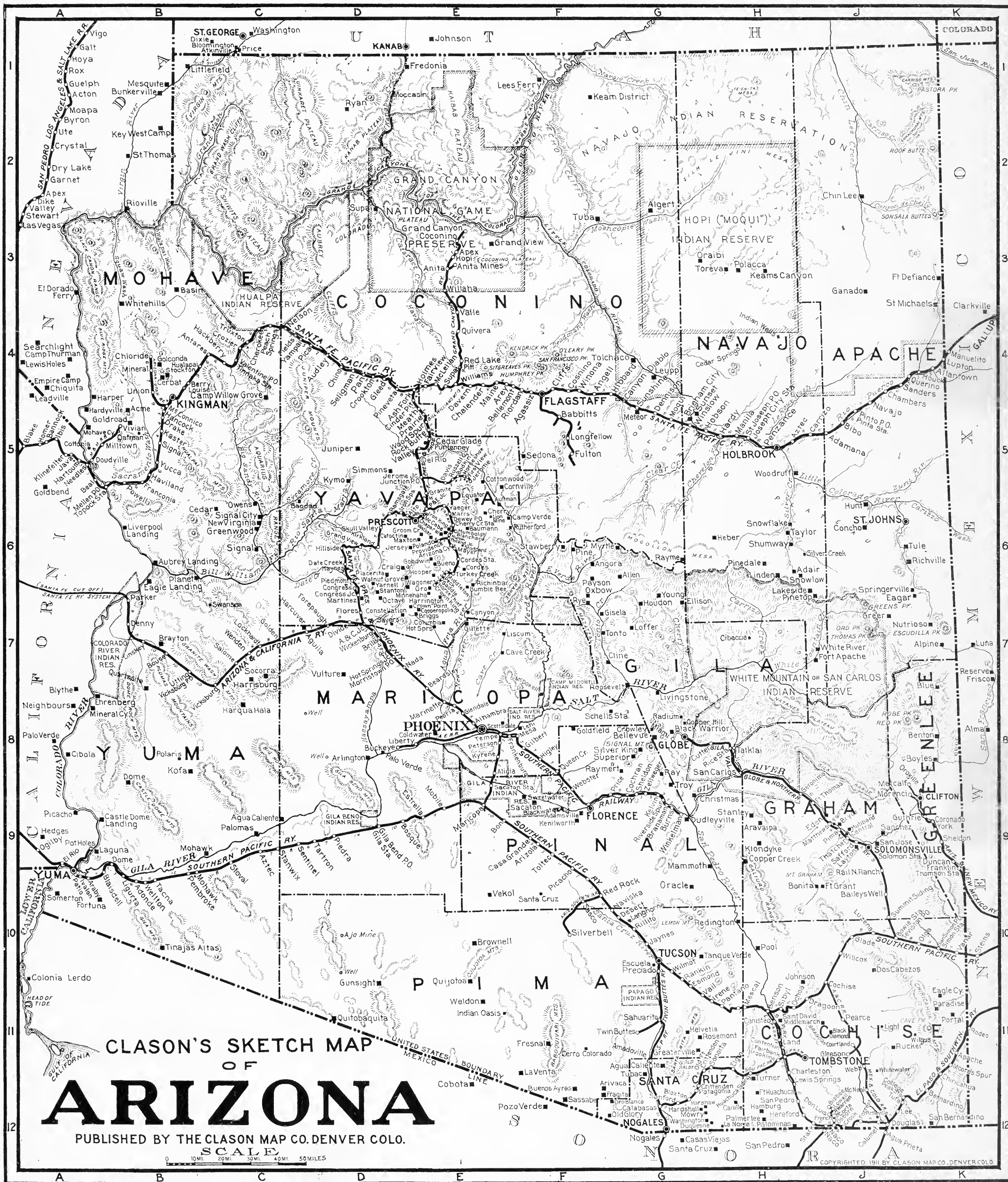
8-4053


Acting Chief of Bureau.

June 20. office notified that \$100.00 may be cancelled on this authorization.



Maricopa County, Ariz.



Arizona: Phoenix, Maricopa Co.

Doves: Economic.

June 20 to 22, 1918.

A. B. Howell.

Information was obtained on the damage to crops by the doves of this region, from interviews with about fifty men. In Phoenix I talked with sport-goods and hardware dealers, professional and business men who hunt doves, superintendents (2) of large tracts of farming land, a crop specialist, the man in charge of the water supply and crop reports of 200,000 acres, the deputy game warden, and many ranchers. The twenty first was spent in Phoenix, talking to the men there, and in shooting 19 Mourning doves. The 22nd, in going from farm to farm, interviewing the owners. My deductions are summarized from all information obtained.

Melopelia atrudeani arrives in numbers the latter part of April. They then feed on the ^usqaw-berry, growing on the desert and later on a small black ^Afruit growing on a desert shrub until wheat and barley begin to harden, when they come to the fields in countless thousands. As soon as the fruits of the salmaros are ready to eat (now), they forsake the ranches almost entirely, and do not return until the grains of the various sorghums begin to ripen. They are especially fond of feterita and fairly "go crazy over it." This they feed on until they leave, the first half of September. The "whitewings" are more gregarious than the mourning doves, and more spectacular in the damage done. Although they are conceded to be less numerous than the latter, they are blamed (and wrongfully, I believe) for the greater amount of damage. One district on a line of flight, will be over-run with them, and here they may cause a vast amount of damage, while there will be comparatively few in another district. This species is accused of being very wasteful, des-

Doves 2

troying more than they eat. There are said to be fewer in the valley this year than there were last, or the year before. Whether this is due to the shooting, now allowed, or to some other cause, is a question. As mentioned before, the whitewings are not^w on the desert, feeding on the sâmaros, and I saw but half a dozen, so I am unable to report anything from personal observation.

Zenaidura m. marginella. More numerous than the last but more widely and evenly distributed, and as they stay in the valley continuously, I consider that in the aggregate, they do more damage than the last. They do not bother sorghum as much as the whitewings, but feed more continuously on wheat and barley, standing, in the shock, and on stubble. I shot 19 in a wheat field 8 miles west of Phoenix June 21, at 6.30-7.30 P. M. The field was about 12 acres in extent, and I estimate that there were 350 doves feeding on the ground at the time. None of the crops were very full, and some, almost empty. All, practically, had at least 3 or 4 small weed seeds and most had one or 2 grains of barley. 12 held only wheat, 1 held 50% wheat and 50% of weed seed (sample #2) crop $\frac{1}{2}$ distended, 2 held 85% wheat and 15% of weed seed (sample #1), 1 held 95% of wheat and 5% of weed seed (sample #1), 1 held 90% wheat and 10% green leaves of some weed, 1 held 97% wheat and 3% weed seed, (sample #3), and 1 held 99% wheat and 1% weed seed, sample #3.

One of the above, whose crop seemed to be only about $\frac{2}{3}$ distended, held 287 grains of wheat. The numbers of these birds in the whole valley must total an enormous figure.

Not only in Phoenix, but along the Gila River I have met no one who had a good word to say for the doves and all were unanimous in condemning

them as the most destructive agency present. The following are instances brought to my attention, and were cited by man who seemed trustworthy in every way. Mr. Bowers, proprietor of printing establishment and owner of ranch, became interested and examined many dozens of whitewings last year. 90-95% of food was wheat, barley, and sorghum, and the rest weed seeds. Many crops were weighed, and the maximum seemed to be about 2 oz. (grain in hard milk stage).

Mr. Morrel showed me a box containing 16 crops of whitewing taken last year, and of course, very dry now. Many of the crops were still entire, but most were only half distended. These weighed 6 oz. and contained only barley and half a dozen shrivelled red berries.

A rancher near Phoenix has 40-50 acres of deciduous fruits. White-wings roosted here by the thousands, breaking the trees and so befouling the fruit that practically all was ruined. About 40 gunners were put in here every evening for 10 days before the birds were driven away. Mr. Zimmerman managed 45 acres of feterita last year. Although 50 gunners shot here every evening for a week, 3/4 of the crop was lost.

The Division Superintendent of the S. P. visited 50-60 acres of feterita last year. His estimate of the doves flying over during the afternoon was a quarter of a million. Doubtless greatly exaggerated but nevertheless significant.

A 20 acre field of wheat this year: Doves invaded it so badly that it was cut when still really too green for good hay, and 4/5 of the grain was estimated to be gone then. Mr. Pinney visited 7 acres of feterita last year with 4 other men. One estimated 4000 doves present, one 4,500, and the other 3,500.

Mr. Morrell visited a field of feterita last year and said there seemed

to be from 1 to 5 whitewings on every stalk. The ground was white with the grain they had wasted. Mr. Pettes, deputy game warden, examined several hundred birds 2 years ago, half held nothing but grain, the rest a mixture, but very few had as much as 50% other matter.

Mr. Morrell counted the wheat in a whitewing which seemed full, and there were 345 grains.

Everyone with whom I talked told me experiences like the above, and I could cite more instances of a similar nature. About 25 farmers with whom I talked near Glendale were all bitter on the subject, but seemed vague in regard to the actual amount of damage done, although positive that it is very large.

Based on estimates from the 200,000 acres in the valley, furnished by the Waterusers board, there are this year 7,500 acres in wheat, 14,000 in barley, and 32,000 in sorghum of various kinds. Because of the doves, there is a tendency to plant less of the first two, and except for hay, almost every one is planting the sorghum so as to ripen well after the white-wings leave in September, which means a possibility of frost damage for some, and consequent loss of crop. The greatest damage done this year has been near Arlington, but as this is 50 miles from Phoenix, I thought it inadvisable to investigate. No one who looks into this matter, even casually, can doubt but that there is enormous damage being done, and my opinion is that during the war, at least, when food stuffs are so important, every thing should be done to reduce the numbers of doves present in the Salt River Valley. They do not breed, at least to any extent in this territory, but raise their young on the desert, and congregate from over a vast amount of territory, according to information received, so it would be many years before they could be decimated to

the point of danger. If a careful watch is kept on them, and protection given when it seems advisable, I can see no disadvantages, but on the other hand, much good to be gained, by the removal of the closed season and bag limit on both White-winged and Mourning Doves. Practically everyone with whom I talked made the remarks that no one who had not seen it, could possibly realize the numbers of doves that congregate here upon occasion.

The seed samples mentioned in Mr. Howell's report represent
the following species:

No. 1. *Amsinckia intermedia*

No. 2. *Chaetochloa glauca*

Amsinckia intermedia

Erodium sp.

Helianthus sp.

Amaranthus sp.

Malva rotundifolia

Atriplex sp.

Lespedeza sp.

No. 3. *Helianthus* sp.

These are listed in the
order of their abundance,
the most abundant first.

W. R. Zucate

COPY.

DAMAGE TO WHEAT IN ARIZONA BY DOVES.

Methods of Control.

1917.

Introduction.

In response to an appeal from the Board of Supervisors of Maricopa County, Arizona, June 6, 7, 8 and 22, 1917, were spent investigating alleged damage to wheat by doves. June 6 was spent driving in an auto over the country near Phoenix, but as no damage could be located the writer proceeded the evening of the same day 50 miles west to Arlington. Here doves of two species, Melopelia asiatica and Zenaidura macroura were abundant, and control experiments were conducted on June 7 and 8 with great success. June 22 the writer accompanied a crop-census taker all day in an auto through the country about Cashion, but failed to obtain evidence of damage, though a careful census of 8 1/2 sections showed 570 acres in wheat.

Damage.

The accompanying clipping from "The Arizona Republican" are made a part of this report, but as will be shown, are greatly exaggerated.

Careful inquiry disclosed only two instances of serious damage in Maricopa County, one of these investigated by the writer, at Arlington, and the other, of less extent, near Phoenix. The writer has traveled by auto from the limit of irrigation about 20 miles east of Phoenix, to Arlington, 50 miles west, but has nowhere, except at Arlington, seen any species of dove abnormally numerous. During the intensive census of 8 1/2 sections near Cashion the farmers were questioned about bird damage but all complaints received were against red-winged blackbirds.

But at Arlington the situation was different. Practically all the wheat in the community was comprised in the 260 acres upon the place of Mr. J. L. Shepard, and here doves (Melopelia asiatica and Zenaidura macroura) were gathered in thousands to

feed upon the grain. Mr. Shepard's place is on the edge of the irrigated district, separated from the desert on the west only by the canal. Doves of both species were nesting in the mesquites bordering the canal. Just across the road bordering the Shepard place on the north were 20 acres of wheat-stubble which seemed to be the main attraction for the birds. In one corner of this field was a stack of cut, but unthres^hed, wheat upon which the birds fed continually. Hundreds of doves passed all day long between the stubble-field and the trees and bushes along the road and canal. Across the road from the stubble-field Mr. Shepard had 70 acres of uncut wheat which also came in for a large share of the doves' attention.

Because of the continual movement it was extremely difficult to estimate the number of birds in the fields, but a conservative guess would place the largest flock seen at one time in the stubble-field at 1,000. About 300 were flushed at once from the standing wheat, and as many as 50 were seen feeding together on the stack. Melopelia apparently more numerous than Zenaidura.

Barley seemed to have no attraction for the birds.

Control.

To determine the efficacy of poison, 15 qts. of 1 to 30 alkaloid-wheat were distributed along fence row, in wheat stubble, and under bushes outside of the canal at 11:30 A. M. June 7th. By 10 A.M. next day this produced 186 Melopelia and 145 Zenaidura. June 8th 20 qts. of 1 to 40 alkaloid-wheat were distributed broadcast in stubble. By 7 A.M. June 9th the combined 35 qts. of poison produced 299 Melopelia and 356 Zenaidura -- not counting numerous spots of feathers left by some 20 buzzards feeding over the fields. As much poisoned grain was still on the ground at 7 A.M., and no reduction in the number of live birds could be noticed with the eye, it is quite reasonable to estimate an ultimate kill of 1,000 birds from the 35 qts. of poison.

The following formula is recommended as entirely satisfactory;

Wheat	40 qts.
Strychnine alkaloid, powdered	1 oz.
Soda Bicarbonate	1 oz
Starch paste	4 qt.
Honey (in lieu of Karo)	4 tablespoons

Conclusions.

Published reports of damage, in Phoenix newspapers, greatly exaggerated. Doves generally distributed over Maricopa County but found abnormally numerous in only two instances -- at Arlington and near Phoenix.

Birds feeding in stubble do no damage. Greatest loss, according to reports, occasioned by doves feeding on shocks and stacks standing in the fields. This is preventable in two ways: (1) Harvesting wheat with header and threshing immediately; or (2), by putting shocks into stacks as quickly as possible and covering with tarpaulins until such time as the grain can be threshed. The first method is much the better. Damage to standing grain is undoubtedly serious where doves are concentrated in large numbers and can be controlled only by killing the birds.

As damage by doves is local and easily controlled there can be no justification for removing protection from the breeding birds, as has been proposed.

Respectfully submitted,

Ernest G. Holt.
Assistant Biologist.

Phoenix, Arizona,
July 28, 1917.

COPY.

BIRD-DAMAGE TO FRUIT IN ARIZONA.

Higley, 1917.

Introduction.

The writer arrived at Higley, Arizona, June 2, 1917, to continue investigations of damage to fruits by various species of birds. (See report "Damage to Farm Products in Arizona by Birds and Small Mammals. 1916.") With the exception of a few days devoted to an investigation of damage to wheat by doves, and a couple of days spent on leave, the time until July 13th was occupied with control experiments on the ranch of Mr. A. L. Hawley. Experiments that had long been unproductive were just beginning to show promise when the writer was ordered by telegraph on the latter date to "stop poisoning immediately." Because of the sudden cessation of experiments no satisfactory control methods were worked out and very little data of value obtained. This is all the more deplorable because at the time quail were becoming excessively numerous and threatened to destroy all peaches, green fruit included.

Mr. Hawley's ranch is situated 2 3/4 miles east of the irrigated district. This pump-watered spot on the desert attracts the birds from the surrounding brush to such an extent that profitable orcharding is impossible. The fate of this ranch is not unique but is shared by all the desert farmers in this section.

DAMAGE.

Little need be added to the writer's report of 1916 (previously mentioned).

On an arbor of seedless grapes (the only grapes ripening at the close of the investigation) 50% of the fruit was destroyed, and the damage continued unabated. From 16 laden peach trees, all that ripened up to July 13th, only 100 lbs. of fruit could be marketed and from 38 apricot trees only 375 lbs. of fruit could be saved. Of course a few peaches and apricots were saved for home use. The fruit on 8 plum trees and 30 berry vines was

completely destroyed before it ripened. Apples were also severely damaged but this fruit at Higley is of no commercial importance.

Mr Hawley has about 3 acres in fruit trees, grape vines, etc.; the list just mentioned includes only those fruits that ripened during the writer's stay. There are many trees laden with green peaches but it is probable that the quail will allow very few to ripen.

SPECIES DOING DAMAGE.

Lophortyx gambeli is without question the most serious pest. Quail were abundant about the place and fed constantly on peaches (green fruit included) and berries. As many as 100 at one time were flushed from the little cotton field beside the orchard.

Next in the order of importance were the thrashers (Toxostoma c. palmeri), which fed on everything that was edible. Apricots and grapes particularly suffered from their depredations.

Orioles (Icterus bullocki and I. c. nelsoni) were not numerous, but destructive to peaches, apricots and grapes.

Verdins (Auriparus flaviceps) were abundant and seriously damaged peaches and grapes.

Mimus polyglottos, Colaptes chrysoides, Dryobates s. bairdi did some damage but the last two cannot be considered of much importance.

CONTROL.

In an effort to find some means of controlling the destructive birds a number of formulae were tried out, using as vehicles raisins, dried apples, green grapes, tomatoes, cantaloupes, plums, peaches, millet (2 varieties), feterita, kaffir, wheat, shallu, rice, oats, chick feed, and water, and employing strychnine (sulphate and alkaloid), corrosive mercuric chloride, potassium bichromate, and potassium cyanide as poisons.

The inconclusive experiments indicate that potassium cyanide and corrosive mercuric chloride are worthless and that the action of potassium bichromate is too slow to be of value. Strychnine, while lethal enough to most birds, when they can be induced to take it, seems to have no effect on quail. (One exception to this statement will appear later.)

Most experiments produces negative results; but it was found that by injecting ripe peaches with a solution of strychnine

sulphate (involving the use of a large hypodermic syringe) and hanging them up in places frequented by verdins these birds could be killed in numbers. Orioles were also killed this way. It is believed that the verdin problem is practically solved.

Fifteen quarts of water posioned with 1/2 oz. of strychnine sulphate and exposed in crocks on the ground produced 63 birds in 48 hours. Of this number 17 were Mimus, 15 Toxostoma, 12 Lophortyx, 5 Icterus, 3 Colaptes, 1 Zenaidura, 6 Geococcyx, and 4 Heleodytes. It is notable that 11 of the quail were found early on the 3rd morning, after the water had partially evaporated and so concentrated the poison. It appears that saccharin does not make strychnined water more palatable.

A few Toxostoma were killed with each of various formulae using strychnine on different kinds of grain but no satisfactory method of combating the species was worked out.

Bird-lime is considered worthless in this climate. It was exposed on tops of posts, on wire, and on heavy cord and small cotton string. Straight bird-lime dries and hardens under the intense sun heat and when mixed with "tree tanglefoot" is absorbed by the string and wood. On several occasions thrashers were observed to alight with impunity on limed strings and posts.

Unfortunately Mr. McAtee's letters of July 9th and 12th reached the writer subsequently to the receipt of the order suspending operations so the valuable suggestions contained in them could not be utilized.

MISCELLANEOUS NOTES.

Agelaius phoeniceus was found abundant in uncut wheat at Arlington, June 7-8, and undoubtedly doing damage. J. L. Shepard of Arlington charges the species with serious damage to feterita and sprouting grains.

Melopelia asiatica seen July 20th pecking the fruit of the sahuaro or giant cactus.

Myiarchus cinerascens seen July 13th to take a grape.

Respectfully submitted,

Ernest G. Halt
Assistant Biologist.

Phoenix, Arizona,
July 28, 1917.

Mr. E. G. Holt of the Biological Survey investigated damage to grain by doves in the neighborhood of Phoenix Arizona in June 1917. Only one case of serious damage was found, that near the town of Airlington.

In experimenting with control measures it was found that both species of doves were easily killed by a posion mixture prepared according to the following formula and spread broadcast over the feeding grounds.

Wheat	40 quarts
Strychnine alkaloid, powdered	1 ounce
Soda bicarbonate	1 "
Starch paste	1 quart
Syrup	4 tablespoons.

COPY.

Bowie, Arizona. Oct. 11, 1916.

Mr. W. L. McAtee,

Washington, D. C.

Dear Mr. McAtee:

I believe that a formal report on the depredations of birds in the grain-sorghum fields at Bowie, Arizona, is hardly necessary, so am giving below the salient facts of the investigation with my conclusions.

Upon arrival at Bowie I found that the damage had almost ceased and several days elapsed before I could find a place where appreciable loss was being occasioned by birds. The species concerned is *Calamospiza melanocorys*, but evidently the main flight had passed on. The largest flock observed contained perhaps 500 individuals.

As nearly as I can ascertain, the flocks begin feeding upon the grain in the milk during the latter part of July. All sorghums suffer during the first of the season but feterita is always much preferred and the black grain is taken least of all. In the aggregate the loss is really considerable as evidenced by the samples of grain heads being sent in this mail. Loss of $2/3$ of the feterita is not unusual. In some instances total loss of the first crop is reported. In fields frequented by the buntings it is sometimes difficult to find an untouched head. Mr. C. G. Bray says that in 1915 the birds were worse than this season, as they seemed unable to find enough to eat on the desert and stayed in the

sorghum fields until Christmas, when all grain was harvested. He accounts for this by the fact that last year there was hardly any grass to furnish the birds with seed. But on the other hand, H. G. Huntzinger, who has a farm in the foothills of the Dos Cabezas, tells me that about August 10, 1916, an immense flock of Calamospiza descended upon 11 acres of "Egyptian wheat" and in 3 days completely cleaned the field and passed on. Undoubtedly the main body of birds passes southward in the early fall.

The "ranches" about Bowie are principally homesteads and desert claims, few and far between, and the acreage under cultivation averages less than 40 each. Two adjoining places were selected for observation which contained 240 and 160 acres respectively, one with 60 acres under cultivation and the other with 50 (more than usual in this vicinity) and each had about 25 acres in feterita. It is believed that when the valley is settled up the damage by birds will be entirely negligible, but of course the pioneers must protect themselves.

I have not seen the buntings at their worst, but my observations lead me to conclude that shooting, in connection with the use of scarecrows, is the proper protective measure to employ in the case of the small fields at present devoted to grain. Of course this would involve more labor and expense than poisoning, but I believe that the destruction of vast numbers of the birds is not desirable. Poisoning would also result in the death of numbers of house finches, vesper and Brewer's sparrows, and perhaps other harmless species; while poisoning alone would not entirely prevent the damage

because large flocks of buntings would undoubtedly consume a great amount of grain before the individuals were all killed. Another point in favor of shooting is that the birds so killed can be utilized for food, as was done by Mr. W. N. Reed.

The buntings may be poisoned by scattering through the fields frequented, and about the brush just outside, clean feterita coated with strychnined starch; or by tying feterita heads, treated in the same way, among the brush surrounding the fields. The latter method, however, must be used only with extreme caution. The former will result in the destruction of numbers of rabbits, ground squirrels, rats and mice, which of course is an advantage.

If poisoning is recommended it should be remembered that thousands of birds will be sacrificed which might otherwise, after a short stop, pass on southward.

With best wishes, I am,

Very sincerely yours,

Ernest G. Hall.

10:45 Lawrence Ks 5/20/19

✓ Ceryle am. ~~♂ 109.3~~

✓ Empidonax virens ~~♂ 109.2 ♀ 108.6~~

✓ Hylocichla ustulata ~~♂ 109.6~~

✓ Empidonax ^{min. ♀ 2:30 P.} ~~♂ 109.0~~

✓ Spizella pusilla ~~♂ 108.7~~

✓ Setophaga ruticilla ~~♀ 109.0~~

✓ Spiza americana ~~♂ 108.3 ♀ 108.6~~

✓ Passerina cyanea ~~♂ 107.5~~ ✓ Least Flycatcher

✓ Buzzard ✓ Robin

✓ Red-bellied Woodpecker ✓ Bluebird

✓ Nuthatch ✓ Goldfinch

✓ Red-headed ✓ Cardinal

✓ Flicker ✓ Rose-br. Grosbeak

✓ Mourning Dove ✓ English Sparrow

✓ Quail ✓ Migrant Shrike

✓ Chimney Swift ✓ Red-eyed Vireo

✓ Bluejay ✓ Bullfinch

✓ Crow ✓ Warbling

✓ Horned Lark ✓ Barn Swallow

✓ Redwing ✓ Chat

✓ Meadowlark ✓ Yellowthroat

✓ Baltimore Oriole ✓ Kentucky Warbler

✓ Grackle ✓ Tennessee

✓ Cowbird ✓ Blackpoll

✓ Acadian Flycatcher ✓ Yellow

✓ Least ✓ Bluegray Gnatcatcher

✓ Wood Pewee ✓ House Wren

✓ Phoebe ✓ Carolina

✓ Great-Crested Flycatcher ✓ Chickadee

✓ ✓ Sapsucker ✓ Wood Thrush

Lawrence, 5/22/19

- 1 Soft-bodied Tit
- 1 Tawny Tit
- 1 Tawny Tit
- 1 Chickadee
- 1 White-throated Sparrow
- 1 Tennessee Warbler ^{9:45} ~~10:05~~
- 1 Least Flycatcher ^{10:04} ~~10:05~~
- 1 Black-poll Warbler
- 1 Blue Jay
- 1 Crow
- 1 Crossed out of nest
- 1 Chimney Swift
- 1 Red-headed Woodpecker
- 1 Flicker
- 1 Redwing
- 1 Meadowlark
- 1 Orchard Oriole
- 1 Baltimore Oriole
- 1 Cardinal
- 1 Yellow Warbler
- 1 Redstart
- 1 Black-throated Green
- 1 Nuthatch

Birds heard & seen steps R.H. Museum,
5/23/1919. 8:00 P.M.

- 1 Nighthawk
- 1 Chimney Swift
- 1 Kingbird
- 1 Robin
- 1 Chipping Sparrow
- 1 English Sparrow
- 1 Purple Martin
- 1 Bronzed Grackle
- 1 Orchard Oriole
- 1 Wood Thrush
- 1 Catbird
- 1 Blue Jay
- 1 Redwing
- 1 Mourning Dove

Lawrence, Ks. 5/24/19

- ~~Spiza americana~~ ~~10:00a~~
~~Passerina cyanea~~ ~~11:00a~~
~~Vireosylva flavens~~ ~~11:00a~~
~~Chickadee~~ ~~11:15~~
~~Coccyzus americanus~~ ~~11:30~~
~~Icterus galbula~~ ~~11:30~~
~~Melanerpes formicivorus~~ ~~12:00m~~
~~Dendroica virens~~ ~~3:00~~ true true true true
~~Spizella pusilla~~ ~~3:30~~ ✓ Crow
~~Icterus virens~~ ~~3:45~~ ✓ Meadowlark
~~Piranga rubra~~ ~~4:20~~ ✓ Redwing
~~Junco~~ ✓ House Wren
~~Nighthawk~~ ✓ Blue Jay
~~Mourning Dove~~ ✓ Chickadee
~~Quail~~ ✓ Tufted Tit
~~Downy Woodpecker~~ ✓ Robin
~~Red-bellied~~ ✓ Bluebird
~~Hairy~~ ✓ Wood Thrush
~~Flicker~~ ✓ Cowbird
~~Red-headed~~ ✓ Eng. Sp.
~~Kingbird~~ ✓ Barn Swallow
~~Acadian Flycatcher~~ ✓ Yellowthroat
~~Yellow-bellied~~ ✓ Cowbird
~~Heast~~ ✓ Sp. Hawk
~~Wood Pewee~~ ✓ Ark. Kingbird
~~Phoebe~~ ✓ P. W. Wren
~~Crested Flycatcher~~ ✓ Catbird
~~Blue Jay~~ ✓ Brown Thrasher

Lawrence, Ks. 5/25/19

- Spotted Sandpiper
 Mourning Dove
 Red-headed Woodpecker
 Downy "
 Flicker
 Chimney Swift
 Kingbird
 Wood Pewee
 Indigo Bunting
 Cardinal, nest 1+1
 Field Sparrow
 Dickcissel
 Migrant Shrike
 Crow
 Chat
 House Wren
 Robin
 Bluebird

Lawrence, Ks 5/30/19

Mourning Dove	Chat
Yellowbilled Cuckoo 2 eggs fresh	Kingbird
Chimney Swift	Kentucky Warbler
Red-headed Woodpecker	Catbird
Downy "	Brown Strasher
Crow	Carolina Wren
Bluejay	English Sparrow
Meadowlark	Red-tail
Bronzed Grackle	
Cowbird	
Phoebe	
Wood Pewee	
Crested Flycatcher	
Goldfinch	
Dark Sparrow	
Wickrissal 3:00 4:30 P.	
Cardinal	
Indigo Bunting	
White-eyed Vireo	
Red "	
Richard Irish	
Baltimore "	
House Wren	
Bluegray Gnatcatcher	
Yellow Warbler	
Robin	
Bluebird	

Skins sent J. E. Law May 29, 1919.

Coccyzus americanus ♀ ♂
Empidonax minimus ♀
Molothrus ater ♀
Lanius carolinensis ♀
Spiza americana ♂ ♂ ♀ ♀
Setophaga ruticilla ♀ ♂
Empidonax virens ♀ ♀ ♂
Polioptila caerulea ♀
Vermivora peregrina ♂
Ondroica aestiva ♀
Passerina cyanea ♂ ♂
Icterus galbula ♂
Piranga rubra ♀
Melanerpes cyathocephalus ♂

Desiderata

Oryzobates arizonae
Antrostomus p. macromystax
Myiodynamis luteiventris
Myiarchus m. magister
Myiarchus l. olivaceus.
Myiarchus p. pallidiventris
Eupidonax f. pygmaeus
Aphelocoma a. arizonae
Percnaea bolteri
 cassini
Ammodramus californicus
Passerina versicolor
Vireo vicinior
Coccothraustes olivacea
Dendroica nigripennis
Toxostoma leucotis
 "
 crissalis
Penthestes delatensis

May 31, 1919.
Callison Pratt, Kans. *Sturnella neglecta*.
Callison, Dickcissel, Black-tailed jack rabbits
Harland, Killdeer, Marsh Hawk, Bronzed grackle
country nothing, entirely under cultivation,
largely wheat, occasional patches of alfalfa.
Few scattered cottonwoods. Small Box Elders
+ small pines about houses. *Lachistes*
great change in ecological conditions.
Barkham Ark Kingbird, Eastern Kingbird
Jay, Scissortail.
Mellinville, Many Dickcissels, Wn Meadowlark
Buckin, Killdeer, Wn Kingbird.

Beyond Joy County more rolling, with R.R. cutting heads of broad open draws leading to south. These are in pasture and show low cut banks from erosion. Wheat in uplands.

Near Meade country more fertile again
Horned Lark com.

20 dog holes occupied in field near
town return Heynera liberal.

Guymon, Okla. Nighthawk.

Buckeye Ariz. 6-3-19

- ✓ Olivaceous Flycatcher
- ✓ Buzzard
- ✓ White-winged Dove
- ✓ Mourning Dove
- ✓ Arkansas Kingbird
- ✓ Redwing (Sonoriensis)
- ✓ Wm Meadowlark
- ✓ Cowbird (obscuro)
- ✓ Arizona Hooded Oriole
- ✓ Phainopepla (Cassini)
- ✓ White-rumped Shrike
- ✓ Cactus Wren
- ✓ English Sparrow
- ✓ Pileolus
- ✓ Linc. Dove
- ✓ Vermilion Flycatcher
- ✓ Nighthawk.
- ✓ Gambel's Quail
- ~~Ground Dove~~

Mr. Harmon damage

Mr. ~~Harmon~~ Walton

Mr. Clayton

6/4/19

Palo Verde,

Mr. Wm Walton

Mr. Higgins damage.

White wing coming at daybreak.

Small flight hour later. Flock of
20 came in and alighted on fence
then to ground no sentinels.

Wary. Bunches in fresh cut field
lying on ground showed occasionally
10-20 heads damaged. grain cut
2-3 days ago.

More flight 3 hrs after sunrise.
6 alighted on shock for few minutes
& fed. 20 heads damaged. Those
heads caught near bend
clumped out so they were held
stationary & could be picked
readily. Much waste grain on
ground and bulk of birds feeding
on it. Many heads cut off
too short to bind and
considerable grain shattered.
Heads eaten out.

White wings fly into line of
cottonwoods & roost. afraid of
Harris Hawk so that all birds.

Mourning Doves began feeding
at daybreak.

S. L. Narramore - Palo Verde.

Thinks White-wings damage. reported to stay late last year. Some hunters damage crops etc by crows shooting. Does not believe White-wings nest until later, White-wings nest in mesquite 10 feet from ground, in fork made of mesquite & grass, full 2 eggs soiled by excrement bird etc.

unto nest & wheat.

30 white-wings on field, much grain on ground. 7 on top sheaves with a few heads picked.

Method of shocking rough.

W. W. Wedgeworth does not think damage by White-wings warrants change in season. Birds not as common this year as formerly.

J. B. Wedgeworth traps grain.

J. Harrison White-wings, doing no damage this year. Believes they should be exterminated.

F. B. Collins favors killing one all

✓ Mourning Dove nest on ground, 1 in mesquite 2 pipped eggs.

nest in mesquite 12 feet up, 1 yg.

nest as bulky as nest of Burrowing Owl not so deep. well cupped. Made of runners & base stems of Bermuda grass. yg 16 days old ^{4:00 p.m.} 10:00 a.m.

✓ Burrowing Owl. Once quiet by quiet.

✓ Quail, quail, quail, quail, quail

✓ Cissal Thrasher 10:00 a.m.

✓ Great Blue Heron

✓ Little Green "

✓ Black-crowned Night Heron Hooded Oriole

✓ Florida Gallinule.

✓ Killdeer

✓ Buzzard

✓ Gambel Quail

✓ White-wing

✓ Mourning Dove.

✓ Cuckoo

✓ Zone-tailed Hawk

✓ Burrowing Owl.

✓ Roadrunner

✓ Gilded Flicker

✓ Gila Woodpecker

✓ Texas Nighthawk

✓ Arkansas Kingbird

✓ Ash-throated Flycatcher

✓ Vermilion Flycatcher

✓ Cowbird

✓ Bullock's "

✓ House Finch

✓ Song Sparrow

✓ White-throated Sparrow

✓ Mockingbird

✓ Cactus Wren

✓ Chat

Buckley, Ariz 6/5/19

- ✓ *Amphispiza bilineata* ~~10:15~~ ^{8:00a} tan tan
- ✓ quick & active very curious
- Crowsal Thrasher ~~10:15~~ ^{8:45a} running on ground
- ✓ jerks tail, digs with bill
- ✓ Texas Nighthawk long roll? rose to full height of legs nodded head & then sank back
- ✓ *P. hiophila plumbea* low harsh meowing call similar to catbird
- 9:00a
- ✓ *Myiarchus cinerascens* ~~10:15~~
- ✓ About Towhee note. Stately tink tink or tink tink high & more indefinite than a crowsal's
- ✓ Killdeer
- ✓ Great Horned Owl
- ✓ Buzzard
- ✓ Texas Nighthawk
- ✓ Ark. Kingbird
- ✓ Wm Meadowlark
- ✓ *Dendroica coronata*
- ✓ Cowbird
- ✓ Bullock's Oriole
- ✓ Arizona Oriole
- ✓ Redwing
- ✓ House Finch
- ✓ English Sparrow
- ✓ Rough-winged Swallow
- ✓ Cactus Wren
- ✓ Plumbeous Gnatcatcher
- ✓ Aberto Towhee
- ✓ White wing
- ✓ Mourning Dove
- ✓ Luce
- ✓ Golden Flicker
- ✓ Gambel's Quail
- ✓ Vermilion Flycatcher
- ✓ Song Sp.
- ✓ White-rumped Shrike
- ✓ Mockingbird

Arlington, Ariz 6/6

- ✓ Killdeer
- ✓ Sparrowhawk
- ✓ Gambel's Quail
- ✓ White wing
- ✓ Mourning Dove
- ✓ Bullock's Oriole
- ✓ Redwing
- ✓ Cowbird
- ✓ Wm Meadowlark
- ✓ House Finch
- ✓ Aberto Towhee ~~10:15~~
- ✓ English Sparrow
- ✓ Song Sparrow
- ✓ Arkansas Kingbird
- ✓ *Melospiza a. trichas* ~~10:15~~ ^{8:45}
- ✓ *Dryobates scalaris* ~~10:15~~ ^{8:45}
- ✓ *Vireo belli* ~~10:15~~ ^{10:00}
- ✓ *Phainopepla nitens* ~~10:15~~ ^{10:45}
- ✓ Great Horned Owl
- ✓ Green Heron
- ✓ Buzzard
- ✓ Wm Redtail
- ✓ Barn Owl (feather)
- ✓ Texas Nighthawk
- ✓ Mockingbird
- ✓ Verdin
- ✓ English Sparrow
- Temp. bare taken same time
- ✓ Cactus Wren
- ✓ White-rumped Shrike
- wee wee wee wee
- wee wee wee wee

Abert's Towhee tee tan. Song at a distance somewhat like that of Song Sparrow. Has same cadence and separation into parts so that at first I was deceived and followed on through the mesquite for some distance. Song more metallic & mechanical. Gambel's Quail low cunk cunk with slight rising cadence at end sharp quit quit for alarm note.

White-wings arrived two days ago. Phainopepla jerk tail up with a side-wise twitch. White crest is thrown forward.

Vireo song like that of Bulb but ends in higher key.

Gambel's Quail kuh qua kuh higher than Valley Quail. Quakers ceh-uhw like P. ion Jay.

White wing nest 8 ft up in crotch of mesquite. small platform of mesquite twigs eggs two.

Redwing tsentk tsentk flat similar call of other Redwings.

Phainopepla koo churr churr.

Flight in passing from bush to tree direct with anterior portion of body raised. wing flit quickly with slight pauses at end of each stroke so that the wing motion seems uncertain. Birds look like Phoebe on wing.

Arlington 6/7/19 8:00 a.m. 7 at home

✓ *Buteo v. anthonyi* 100.6

Toxostoma c.

✓ Great Blue Heron 11 nests with young.

Pipilo aberti 8:15 a.m.

White-wing 9:30 9:30 9:30 9:45 11:15 10:15

Mourning Dove 9:30 9:30 9:30 9:30 9:30 9:30

Dryobates scalaris 11:30 10:15

Varden 12:00 10:15

✓ Killdeer

✓ Arkansas Kingbird

✓ Ash-throated Flycatcher

✓ Say's Phoebe

✓ Redwing

✓ New Meadowlark

✓ Bullock's Oriole

✓ House Finch

✓ Rough-winged Swallow (Belted)

✓ Mockingbird

✓ Cassin's Thrasher

✓ *Toxostoma c.* song thrasher but
connected, phrasing but indefinite

✓ ♂ wintering fluttering tail. Another
up from perch to 30 feet in
air clapped wings loudly several
times and then set wings and
seated down.

✓ Texas Nighthawk curious clicking
coo-coo-coo-coo-coo ♂ rolling
cut-a-keh-ā whining
Kik Kik Kik Kik nod head
coo-coo-coo-coo-coo-coo
Peculiar rattling note.

Arlington 6/8/14

✓ Cactus Woodpecker click, v rattle like downy
wren flycatcher ~~7:30~~

✓ *Colaptes chrysoides* ♂ ~~105.8~~ 7:45 ♀ ~~108.6~~ 8:30 a.m.

Toxostoma c. palmeri pretty pretty quiet

✓ Texas Nighthawk ♂ ~~107.7~~ 9:30 ♀ ~~107.9~~ 9:45 10:00

✓ *Toxostoma c. palmeri* ~~108.0~~ 10:30

✓ Plumbeous Gnatcatcher ♂ ~~108.0~~ 10:45

✓ Buzzard

✓ Sparrowhawk

✓ Ash-throated flycatcher

✓ Ark. Kingbird

✓ Redwing

✓ Meadowlark

✓ Bullock's Oriole

✓ White-wing

✓ Mourning Dove

✓ Quail

✓ Verdin

✓ Say's Phoebe

✓ Mockingbird

✓ Grasshopper Thrasher

✓ Cactus Wren 9:30 P.M.

✓ Barn Owl ♂ ~~105~~

✓ Night Heron

- Arlington Aug 6/19
- ✓ Gila Woodpecker ^{7:00a} ~~108.7~~
 - ✓ Blue Grosbeak ^{7:45a} ~~108.7~~
 - ✓ Cowbird ^{8:00a} ~~108.2~~
 - ✓ Vermivora luciae ^{9:00a} ~~108.6~~ ^{9:30} ~~109.5~~ ^{10:00} ~~108.0~~
 - ✓ Killdeer
 - ✓ Great Blue Heron
 - ✓ Buzzard
 - ✓ Gambel's Quail
 - ✓ White-wing
 - ✓ Mourning Dove
 - ✓ Gilded Flicker
 - ✓ Sparrowhawk
 - ✓ Black Hawk
 - ✓ Oak Kingbird
 - ✓ Ash-throated Flycatcher ^{8:30} ~~108.6~~
 - ✓ Say's Phoebe
 - ✓ English Sparrow
 - ✓ House Finch
 - ✓ Redwing
 - ✓ Bullock's Oriole
 - ✓ Crested Thrasher
 - ✓ Curve-billed "
 - ✓ Meadowlark
 - ✓ Plumbeous Gnatcatcher
 - ✓ Abert's Towhee
 - ✓ Verdin

Gila Woodpecker. light bar on primaries prominent in flight. flight bounding note a rattling call rather high pitched and querulous. Many Warbler sharp chip.
 tan tan tan tan teas. a ~~tail~~
~~repetition~~ repetition, rapid & in some
 by sometimes followed by other notes
 tan tan tan tan tan teas tan trip
 Suggests Virginian Warbler but resolved.

Webb's Well, Arlington

- ✓ Poorwill ^{9:30} ~~107.2~~
- ✓ Gila Woodpecker
- ✓ Gambel's Quail
- ✓ White-wing
- ✓ House Owl Kingbird
- ✓ Ash-throated Flycatcher
- ✓ Say's Phoebe
- ✓ Crested Thrasher
- ✓ Parula "
- ✓ Plumbeous Gnatcatcher
- ✓ Abert's Towhee
- ✓ Verdin
- ✓ Texas Nighthawk

Woolsey Park

6/10/19

- ✓ Cactus Woodpecker 8:30
- ✓ Gila Woodpecker 8:45
- ✓ *Peterus parisorum* 9:15 100.0 9:15 10.8.3
- ✓ White wing 9:00
- ✓ Buzzard
- ✓ Cormorant
- ✓ Redwing
- ✓ Cowbird
- ✓ Gilded Woodpecker
- ✓ White Towhee
- ✓ Shrike
- ✓ Purple Warbler
- ✓ Plumbeous Gnatcatcher
- ✓ Cactus Wren
- ✓ Oriskany Thrasher
- ✓ Palmers
- ✓ Gambels Quail
- ✓ White wing
- ✓ Sparrowhawk
- ✓ Say's Phoebe
- ✓ Ashthroated Flycatcher
- ✓ Ark Kingbird
- ✓ Verdin
- ✓ Texas Nighthawk

- ✓ Texas Nighthawk quä quä quä quä
- ✓ Gila Woodpecker Kwä kwä kwä
- drum happy tr-r-r-r-r
- about half as fast as Red belly.
- ✓ Scotts Oriole shows as much white as Bobolink of *Calamospiza* in flight.
- call a harsh chuck more guttural than other orioles. a few harsh notes
- Gila wren quä quä quä, rather harsh

4380 *Toxostoma c. palmeri*

1 *Melospiza asiatica* ♀ - absent

2 " " " "

3 *Icterus parisorum*

✓ 4 *Phalaenoptilus* ♂

5 *Auriparus* ♂

6 *Myiarchus cinerascens* ♂ at Killebuck

7 *Icterus parisorum* ♂

8 *Centurus uropyg* ♀

Barro Colorado, 6/11

10 acres wheat - damage nominal

14+21 = 35 acres Threshed yielded 435 lbs.

10 acres wheat in shock, damage nominal

✓ 40 " " " " " "

15 " " " " " "

10 " " " " " "

10 " " " " " "

5 " " " " " "

White wing 2 yg. both contained wheat
♂ + ♀ in nest. yg 8 days old.

Cactus near Chuan chuan chuan -
chuan chuan chuan

4589. *Melospiza* ♀

✓ 90 *Basileuterus luciae* ♀ in

1 *Guiraca c.* ♂ ad.

Icterus parisorum

Webbs Well, Woolsey Peak, Ariz.

June 10, 1919

♀ oil gland present in ch.

left caecum only present

length of intestine 225 mm

caeca to anus 25

length of caecae 3

caeca poorly defined from wall
of intestine.

♂ ad wing eutaxic

White-wing

4/12

Artemis

who hoo who hoo-oo

male flies up with clapping wings
making full strokes of ~~open~~ wings
~~things~~ wings high above back. Then
with set downward wings seals
down in long circle.

- ✓ ♂ resting in ~~down~~ on open perch.
watches tail when I come in sight.
Both parents solitary in early morning
both at nest.

✓ set of 2 eggs fresh in mesquite. ♂ put
up nest a shallow platform of mesquite
twigs. One perch near here evidently
given to a bird by pile of ~~down~~
beneath.

who hoo
who hoo hoo ~~ah~~ hoo hoo ah hoo
~~hoo~~ - who-oo Sometimes shortened

Quick quek-eh low rattled
given by males. who pursue each
other striking with wings.

✓ Birds seen usually as silhouettes
through thin foliage of mesquite.

White wings fly in and alight above
✓ me on dead limbs of large mesquite
where they eye me curiously twisting
the head about and at the same
time twitching the tail constantly. This
action seems most pronounced in

the male. It raises the tail high spreading as he does so so that it displays a continual flashing of black and white.

♀ whitewing dropped from nest containing 2 young & walked off on ground fluttering wings and jolting forward on breast.

2 yg. with old crops contained much what ♀ flutters from nest & drops to ground & flutters off. ♂ flies down near her and walks about with feathers on back raised and those on throat and upper breast puffed out so that each feather stands out separately. stalks along in treacherous manner looking twice normal size. yellow brown eye very prominent.

6/12

Phainopepla, robin like call.

Vermivora luciae ^{10:30} ~~10:30~~

Melospiza ^{10:15} ~~10:15~~ ~~10:15~~

1 Drowned out tolling note of Texas Nighthawk continued for 30 seconds.

1 Verdin fighting & scolding over nest.

Texas nighthawk low whining call. ♀ flies near ♂ who sets his wings decussing them in an inverted

~ and follows her.

Arlington 6/13

✓ Cooing of whitewings made a great volume of sound that while it filled the air yet was subdued so that other sounds, ~~even the~~ the song of a Redwing the cooing of a Browning dove, the song of a Lucy's Warbler or the stamping of a horse came through it clearly. The ear at ~~the~~ was able to pick out occasional notes from birds near at hand but in general the whole blended into an undercurrent of notes that formed a background for other familiar noises. The whole produced an effect almost indescribable.

Song Sparrow

8:30	9:00	9:00
109.2	108.6	109.3

6/17 Arlington
Chamaepelia

6/18 Cashin
Black Phoebe.

- June 15
- ✓ Canyon Wren 8.00
 - ✓ Aberts Towhee 10.00
 - ✓ Canyon Wren 15.00
 - ✓ Amphispiza 5 Desert Wren 10.00
 - ✓ Pelican
 - ✓ Great Blue Heron
 - ✓ Buzzard
 - ✓ Gambel's Quail
 - ✓ White-wing
 - ✓ Anna Dove
 - ✓ Mourning
 - ✓ Golden Plover
 - ✓ Gila Woodpecker
 - ✓ Gila
 - ✓ Texas Nighthawk
 - ✓ Dark Kingbird
 - ✓ Ash-throated Flycatcher
 - ✓ Blue Grosbeak
 - ✓ Smith
 - ✓ Plumbeous Gnatcatcher
 - ✓ Verdun
 - ✓ Cactus Wren
 - ✓ Red-tailed Hawk
 - ✓ Sparrowhawk

Aberts Towhee squealing gray gray
 gray
 Cactus Wren mountain trail
 2 yg Buzzards 1/3 grown. in hole
 in rocks. notes a peculiar
 hissing sound. When approached
 birds! Out head down under breast
 gave note and struck out suddenly
 with wings. Note varied by
 a catlike hiss like. Very strange
 mammalian like. eyes gray blue
 clambered about reading over rocks
 holding wings with spread
 much & hummed about place
 and strong buzzard note
 Desert Sparrow note low tail
 Plumbeous Gnatcatcher new
 & a Vireo like chir chir

Arlington 9/16
 7:00 am.
 sylvilagus δ ~~10:00~~
 Cactus wren ~~10:00~~
 Myiarchus cinerascens δ ~~11:00~~ 11:00 a.
 White wing δ flying ~~11:15~~ 11:15 a.
 Verdin δ just bathed ~~11:30~~ temp. reduced by evap.

yg Buzzards covered with white down, wing feathers barely showing. Center of neck over oesophagus with skin wrinkled & base of dark slate in color in contrast to pink of skin on other parts of body. bare skin about head, dark slate.
 Birds regurgitated and after continued to drip drops of fluid from bill. But strongly at start. Old wings extended and head bent down. Nest under lava rock near summit of Malpais Butte. on south face. ^{small} Bands of rabbits scattered about.

White-wing nest / fresh eggs
 2 yg. 4 days old.
 Texas Nighthawk, low purring call. Feeding above mosquito.
 Flight less robust than that of *C. virginianus*. Speed maintained by quicker shorter wing beats.
~~flashed~~ rapid in flight.

6/11/14

The distant cooing of White wings
has so little character that one's
ears soon become accustomed to
it and it passes unnoticed.

Phainopepla ♀ 8:00 105.0 ♂ 8:15 106.6 ♀ 9:00 107.6
flying

6/11 Phoenix -

Doxostoma c. pilosum. Song shrill like but
connected not divided into couplets.
continuous with pauses at regular
intervals only. Pleasing. phrases given
in no set manner.

4 miles from Phoenix on White wing.
M. Riddle. does arr. Jerry remain
until Aug. damaged Shulter.
not in yet.

4 Bluebirds 6 miles W. Chandler 18 & 77

J. Gray. White wings appeared 10

days ago shot for other days & left.

Small tract wheat. last year's crop
came into 100 acres above. shot for
ten days by men from Phoenix &
left.

Blk Phoebe Mesa

gila woodpecker few in cottonwoods

House Finches roosting in park.

Note of Redwing like that of Dickcissel

Country level. occasional Sagueros
in fields.

6/20

5 miles S of here no whistlings in
barley.

Redwings near two broods.

and res! S of here 1 Whistling
on desert.

Mt. Graham ~~Suffolk~~, Ariz 6/25/15

✓ least Vireo ♂ ^{2:30} ~~100~~ chrr chrr chrr

✓ Pigeon ♂ ^{3:00} ~~100~~ 3:00

✓ Wood Pewee ♂ ^{3:00} ~~100~~ 3:00

✓ Killdeer

✓ Buzzard

✓ Ash Woodpecker

✓ Ark Kingbird

✓ Ash-throated Flycatcher

✓ Vermilion Flycatcher

✓ Bronzed Cowbird

✓ Redwing

✓ Bullock's Oriole

✓ House Finch

✓ English Sparrow

✓ Cactus

✓ Desert Sparrow

✓ Mourning Dove

✓ White-wing

✓ Gambel's Quail

✓ Blue Grosbeak

✓ Chat ♂ ^{5:00 PM} ~~100~~

✓ Phainopepla

✓ Yellow Warbler

✓ Cactus Wren

✓ Palmer Thrasher

✓ Cardinal

✓ Abert Towhee

✓ Verdin

✓ Roadrunner

✓ Wren Goldfinch

✓ Black Phoebe

✓ Lazuli Bunting

✓ Rough-winged Swallow

Mt. Graham 6/28

Holbrook's holds tail aloft & waves it
Cardinal superb in rich color. note
slightly sharper than eastern bird.

Wooded Oriole - more alert nervous calling all day
John Kent - Fort Bld.

Rimbell Marham Arizona State Post & Ag Bld
Arizona woodpecker squeaks like hairy but
harsher

Bridled Tit barely early

Pale leucis white about head
and underneath back gray. with broken
dusky spots. Tail with 5 black rings
& a black spot beneath. Sides
orange anteriorly, ^{laterally} broad band of
greenish blue with two black bars.

6/27/19, 10:30

- Cardinals c. superbus ~~♂ 10:30~~ ^{♂ 10:30 a} 6:30
- Acton c. ulami ~~♂ 10:30~~ ^{♂ 10:30 a} 6:30
- ✓ Pomwill quit quit flight like 3 lakes
- ✓ Dryobates scalaris ~~♂ 10:30~~ ^{♂ 11:30 a}
- ✓ Parus arizonae ~~♂ 10:30~~ ^{♂ 11:30 a}
- ✓ Dryobates arizonae ~~♂ 10:30~~ ^{♂ 11:30 a}
- ✓ Verreauxia virginiae ~~♂ 10:30~~ ^{♂ 11:30 a}
- ✓ Scathifurax plumbeus ~~♂ 10:30~~ ^{♂ 11:30 a}
- Buzzard
- White-winged Dove
- Mourning "
- Banded Pigeon
- Plover
- Red-shafted Flicker
- Allen's Hummer net
- Cockoo
- Wren Wood Pewee
- Ark. Kingbird ~~♂ 10:30~~ ^{♂ 11:30 a}
- Cassin's "
- Ash-throated Flycatcher
- Black Phoebe
- Cowbird
- ✓ Bullock's Oriole
- ✓ House Finch
- Wren Goldfinch
- Mountain Towhee
- Black-headed Grosbeak
- Desert Sparrow
- Phainopepla
- ✓ Least Dove
- Warbling Vireo
- Canyon Wren
- ✓ Cactus Wren
- ✓ Cassin's Thrasher
- Hermit Thrush
- ~~Phainopepla~~ ^{♂ 11:30 a}
- Bridled Tit ~~♂ 10:30~~ ^{♂ 11:30 a}
- ✓ Summer Tanager
- Raven
- Hairy Woodpecker
- ✓ Vermilion Flycatcher
- Woodhouse Jay
- Wren Gnatcatcher
- Vireo Plumbeus

Dual per bute cabbage much
melon. E.O. Richardson Jr. to
Algodon.

2 Apricot trees bickled
3 fig trees just up. Other?
House Finch, Hooded & Bulb's Thrush
B. F. Sparrows small
Mrs. Evans 2 acres. Green
House Finch & Palmers Thrasher eating
peaches, Apricots some plums

Artesia 6/28
Vermilion Flycatcher $\frac{2:00}{\$109.0}$
Wrights Flycatcher $\frac{2:09}{\$108.7}$

Myiarchus pre-e. drawn out
whistle suggesting axillarium
Myiodynastes whit. it. - seen loud &
emphatic. bird perched on dead limbs
in sun or shade. striped breast showed
plainly as did light stripes on side
of jaw.

Chiricahua Mts. Spring Canyon 6/30/19
 3:15 P. 3:15 P.
 9:10 2 2 109.3
 3:30
 107.5

- ✓ Myiarchus
- ✓ Aphelocoma s. arizonae
- ✓ Otus ?
- ✓ Whippoorwill Whirr-r-r poor-r-r will
- ✓ Flicker
- ✓ Ant-eating Woodpecker
- ✓ Yellowhead (Riggs Ranch)
- ✓ Horned Lark Dos Cabezas
- ✓ Ark Kingbird
- ✓ Cassin's Kingbird
- ✓ Wood Pewee
- ✓ Mtn Towhee
- ✓ Chipping Sparrow
- ✓ Mourning Dove
- ✓ Blue Grosbeak (Dos Cabezas)
- ✓ Lark Sparrow " "
- ✓ Purple Martin
- ✓ Myiodynastes luteiventris
- ✓ Phainopepla nitens
- ✓ Painted Redstart
- ✓ Robin
- ✓ White-throated Swift
- ✓ Cotton-top Amc.
- ✓ Swainson Hawk.

Band-tailed Pigeon who hoo, who hoo
 who hoo hoo. given slowly with
 a guttural accent in second note
 that is lost with distance so that
 call resembles hooting of Owl.

Parrots 6-8 arr. Aug. 20¹⁹¹⁷ increased
 until 300 present Sept. 1. Remained until
 March 26-27, 1918 when 10-12 seen.

40-50 killed. did not nest. Some of first
 arrivals undoubtedly yg. Corn & Kaffir
 corn nearby not touched. J. Stephens
 ✓ had corn no damage. Found cones of
 Chihuahuana pine. When these gone acorns
 fed in to in snow on acorns. became
 very thin. In summer roosted among
 pines above. fed in two large flocks.
 In winter apparently roosted lower down.
 very noisy. afraid of Hawks.

Chiricahua Mt 7/1/19 1:00 P.M.

- ✓ Aphelocoma s. arizonae 9:40 A 106.2
- ✓ Baeolophus w. ammanni 12:15 P. 108.7
- ✓ Icterus parisorum 1:00 P.M. 106.2
- ✓ Ectophasia picta 1:45 P. 111.2
- ✓ Lanius s. plumbeus 1:00 P.M. 107.4
- ✓ Thryomanes b. 1:00 P.M. 107.4
- ✓ Band-tailed Pigeon
- ✓ Mourning Dove
- ✓ Whippoorwill
- ✓ Small Owl
- ✓ Ark Kingbird
- ✓ Cassin's "
- ✓ Wood Pewee
- ✓ Olivaceous Flycatcher
- ✓ Mountain Towhee
- ✓ Flicker
- ✓ Hairy Woodpecker
- ✓ Ant-eater
- ✓ Arizona "
- ✓ Chipping Sparrow
- ✓ Purple Martin
- ✓ Sulphur-bellied Flycatcher
- ✓ Black-throated Grey Warbler
- ✓ Virginia Warbler
- ✓ Robin

June tea ten two ten tea-ee-ee-ee

Band-tail who-hoo-oo with guttural
accents & roll on last note. Or and a
rolling guttural roo-oo-oo-oo
✓ yg crossbill note soft chattering like
yg goldfinch

Born edition of Douglas International
about Dec. 1917.

O.C. Duffney - Paradise. Barroto
arrived August 1917. left March 1918.
collected Jan 20, 1918, very poor in flesh.
about 50 taken & skinned. Some at
Chandler Bros El Paso. Some Colby
Los Angeles. Did not find on East
✓ Slope. About 250-300 in two flocks.
Many reported from Monte Vista.
Stomachs contained acorn, 1, 2 grains wheat.
Another visitation 15 years ago came on this
side, fed on quince in dough. One
young tipped given to a prostitute in a
dance hall, earned to catch. Others
came 17 years ago.

Chiricahua Mts

7/2/19

- | | | |
|-------------------------|------------------|------------------|
| ✓ Junco palliatus | 11:30 | 1:15 P. |
| ✓ Piranga hepatica | 108.7 | 109.7 |
| ✓ Cowbird flycatcher | 11:30 | |
| ✓ Crossbill | 108.7 | 108.7 |
| ✓ Red-tailed Hawk | 4:00 | 4:00 |
| ✓ Sparrowhawk | 108.7 | 108.7 |
| ✓ Great Horned Owl yg | | |
| ✓ Spotted Owl | | |
| ✓ Flicker | | |
| ✓ Hairy woodpecker | | |
| ✓ Ant-eating Woodpecker | | |
| ✓ Rivoli Hummer | | |
| ✓ White-eared " | | |
| ✓ Broadtailed " | | |
| ✓ Wood Pewee | | |
| ✓ Western Flycatcher | | |
| ✓ Sulphur bellied " | | |
| ✓ Chipping Sparrow | | |
| ✓ Mtn Towhee | | |
| ✓ Black-headed Grosbeak | | |
| ✓ Purple Martin | | |
| ✓ Plumbeous Vireo | | |
| ✓ Black-fronted Warbler | | |
| ✓ Black-throated gray " | | |
| ✓ Grass " | | |
| ✓ Painted Redstart | | |
| ✓ Scelater's Chickadee | | |
| ✓ Bairdi Wren | | |
| ✓ House " | | |
- | |
|----------------------------|
| - Robin |
| ✓ Hermit Thrush |
| ✓ Chestnut backed Bluebird |
| ✓ Cassin's Kingbird |
| ✓ Arizona Jay |
| ✓ Long-crested " |
| ✓ Band-tailed Pigeon |
| ✓ Mourning Dove |
| ✓ Mead's Quail |
| ✓ Olivaceous Flycatcher |

Arizona Woodpecker 8 juv. some
chr. r. r. r. rather harsher than Downy
or hairy.

Pantestis scitator. drawled ~~chee chee~~
chee-ee chee. slower than in
gambeli.

✓ Comes *Dycaetum* like wood Paves note
flat ~~zip~~ zip.

Christina M. 7/3/99:159

Dryobates arizonae ~~108.4~~ 10:00g

✓ Polioptila c. obscura ¹⁰⁻⁰⁰ ~~10-07~~

Junco palliatus ♀ ~~+08.3~~

James G. ... 11:45a 3:45p 3:45p
 ... 111.3 110.3 111.6

Eutamias 4:15 P.
8/102-4

Loxia stricklandi ~~5-10-1~~ 5-15-1

Loxia c. stricklandi ♂ 108.2 9:00
- *Antrostomus v. macrourus* ♂ 108.4

✓ Morning Dove

Band-tailed Pigeon

Red-tailed Hawk

Golden Eagle.

✓ licker

Navy Woodpecker

Rivoli Hammer

Broad-tailed ..

✓ Sparrowhawk.

Ant-eating Woodpecker

Wood Pewee

✓ Western Flycatcher

Chipping Sparrow

✓ Mtn. Scurrier
✓ R. V. L. L.

Black-headed Grosbeak

111

Sulphur-billed Gnatcatcher
Pied-billed Grebe

Purple Martin
P. Vireo

✓ Black-bellied Wren

✓ Mount Thrush

Robin

✓ Puffin Nuthatch

Otus:
 wing diastasis.
 oil gland with elongate papilla
 4 abraded feathers near tip.

^{7/4}
 Parrots view on dry years.

- ^{7/5}
- | | | |
|------------------------------|-----------------|-----------------|
| | 7:30 A. | 3:00 P. |
| ✓ Painted Quail | 1085 | 1092 |
| ✓ Archilochus alexandri ♀ | 8:45 A. | |
| ✓ Otus flum | 9:00 | |
| ✓ Mourning Dove | | |
| ✓ Band-tailed Pigeon | | |
| ✓ Buzzard | | |
| ✓ Arizona Woodpecker | | |
| ✓ Flicker | | |
| ✓ Junco | | |
| ✓ Whippoorwill | | |
| ✓ Broad-tailed Hummer | | |
| ✓ Sparrowhawk | | |
| ✓ Ant-tating Woodpecker | | |
| ✓ Wood Pewee | | |
| ✓ Sulphur-bellied Flycatcher | | |
| ✓ Chipping Sparrow | | |
| ✓ Min Towhee | | |
| ✓ Black-headed Grosbeak | | |
| ✓ Purple Martin | | |
| ✓ Phainopepla nitens | | |
| ✓ Robin | | |
| ✓ Canyon Wren | | |

Chiricahua Mts. 7/6/19.

- / Buzzard
- / Band-tailed Pigeon
- / Mourning Dove
- / Ant-eating Woodpecker
- / Arizona " "
- / Flicker
- / Gambel's Quail
- / Black-chinned Hummer
- / Whippoorwill
- / Poorwill
- / Humm. Screech Owl
- / Olivaceous Flycatcher
- / Sulphur-bellied " "
- / Wood Pewee
- / Ark Kingbird
- / Cassin's " "
- / Arizona Jay
- / Raven
- / Chipping
- / Mtn Towhee
- / Black-headed Grosbeak
- / Warbling Vireo
- / Plumbeous " "
- / Purple Martin
- / Grace's Warbler
- / Painted Redstart
- / Robin
- / Baird's Wren
- / Junco
- / Sparrowhawk
- / Broad-tailed Hummer
- / House Finch

Pinney Canyon 6000 ft 7/7.

- Mourning Dove
- Ant-eating Woodpecker
- Flicker
- Gambel's Quail
- Black-chinned Hummer
- Whippoorwill
- Olivaceous Flycatcher
- Wood Pewee
- Cactus Kingbird nest.
- Chipping
- Mtn Towhee
- Canyon Towhee
- Black-headed Grosbeak
- Plumbeous Vireo
- Baird's Wren
- House Finch
- Robin
- we goldfinch
- Apache squirrel 2

Citellus

Light

2:15 P.

Canyon Towhee

3:15

Buteo Swainsoni

4:00 P.

Cornus cryptoleuca

5:00 P.

Cactus Wren

6:00 P.

Meadowlark

6:06 P.

Rough-legged Hawk

7:10 P.

Horned Lark

7:16

Moore's Ranch 14 mi. E Webb. 7/8

- ✓ Phainopepla
 - Palmer Thrasher
 - Mocker
 - Nighthawk (virg.)
 - Ark. Kingbird
 - Cassin
 - Vermilion Flyc. sky dancer
 - Canyon Towhee
 - Passer domesticus
 - House Finch
 - Desert Sparrow
 - Yellowthroat (7)
 - Bronzed Cowbird
 - Cowbird
 - Mesquiza Oriole
 - Scott's Oriole
 - Shrike
- | | | | |
|----------|---------|---------|---------|
| | 11:30 | 11:30 | 11:30 |
| Citellus | ♂ 103.9 | ♀ 104.2 | ♂ 104.8 |
- Meadowlark.

- 1 yg. White-rumped Shrike fledgling
gape, tongue contains portion of palate
Bright yellowish orange.
- White-winged Dove
 - Chipping Sparrow
 - Mourning Dove
 - Flicker
 - Nighthawk (C. virg.)
 - Ark. Kingbird
 - Cassin
 - Wood Pewee
 - Olivaceous Flycatcher
 - Black Phoebe
 - Canyon Towhee
 - Scott's Oriole
 - House Finch
 - Baird's Wren
 - Ant-eating Woodpecker

Cassin's Kingbird flies at swiftly
30 yards high makes sudden quick
high darts at the same time turning
slightly on side so that wings
rattle. Cat primaries?

Rucker Canyon 7/4/19
 Arizona Jay Bob & at same time
 spread raised wings in flight

Myiarchus C. olivaceus. Bird has
 loud calls of eastern Gnat crest.
 Perches quietly among leaves of sycamores.

Aphelocoma A. arizonae 8:00 a.m.
 108.7
 P. ranga hypatia 1:00 p.m.
 104.8
 Myiarchus C. olivaceus 2:30 p.m.
 109.8

~~Arizona Hawk~~

- Flicker
- Arizona Woodpecker - Sharp-shinned Hawk
- Ant-eating "
- Wren
- Black-chinned Hummer
- Wood Pewee
- Cassin's Kingbird
- Ark.
- Black Phoebe
- Scott's Oriole
- House Finch
- W. Goldfinch
- Chipping "
- Black-headed Grosbeak
- Plumbeous Vireo
- Robin
- Bairds Wren
- Rky Mtn Nuthatch
- Gambel's Quail
- Mourning Dove.
- Nighthawk
- Canyon Towhee
- Palmer's Thrasher

Montevista 7/10

✓ Ash-throated Flycatcher ~~seen~~ seen shot
Actus parsoni quarter there other
 orioles, perches in tops of oaks taking
 little care for concealment.

✓ Comes Flycatcher *Onaia Onaia*. low
 rattling trill. Shirts tail before alighting
 Cuckoo yq whist chew, low chattering
 notes, drawn out drawing calls

✓ Band tailed ♂ flying with short wing
 strokes utters bleating call like na-a-a
 of young goat.

✓ Chickadee spat tly spat tly
 shy kups concealed in limbs

Olive Warbler loud Wrenlike
 tray tray tray or re ter e ter
 tray tray tray

na na na na na na na na na na

✓ Comes Flycatcher. Pray ter whirring
 or. Clear whistled.

✓ yq grace's warbler jaks tail constantly
 ✓ W. Palm Warbler. Has notes of adult,
 a sharp chip and a very faint trill

- | | | | | |
|---------------------------------|----------|----------|----------|---------|
| ✓ Comes Flycatcher | 9:00 | 9:30 | 9:30 | 10:00 |
| - <i>Penthestes belati</i> | 10:15 | 10:06.30 | 10:06.30 | 10:08.4 |
| - <i>Pseudodramus olivaceus</i> | 12:00 P. | 10:07.5 | | |
| - <i>Junco pulliatus</i> | 12:00 P. | 10:08.0 | | |
| - <i>Dendroica nigripennis</i> | 12:30 | 10:00.0 | | |
| - Flicker | | | | |
| - Arizona woodpecker | | | | |
| - Ant-eater | | | | |
| - Blue-throated Hummer | | | | |
| - Black-chinned " | | | | |
| - Broad-tailed " | | | | |
| - White-throated Swift | | | | |
| - Mourning Dove | | | | |
| - Band-tailed Pigeon | | | | |
| - Gambel's Quail | | | | |
| - Scott's Oriole | | | | |
| - House Finch | | | | |
| - Mtn Towhee | | | | |
| - Canyon " | | | | |
| - Chipping " | | | | |
| - Black-headed Grosbeak | | | | |
| - Wm Goldfinch | | | | |
| - Wood Pewee | | | | |
| - Wm Flycatcher | | | | |
| - Ark Kingbird | | | | |
| - Cassin " | | | | |
| - Black Phoebe | | | | |
| - Olivaceous Flycatcher | | | | |
- | | |
|-------------------------|--|
| - Arizona Jay | |
| - Long-billed " | |
| - Grace's Warbler | |
| - Virginian " | |
| - Robin | |
| - Mex. Bluebird | |
| - Bushy " | |
| - Brown Creeper | |
| - Rky Mtn Nuthatch | |
| - Blue-gray Gnatcatcher | |
| - Painted Redstart | |

Rucker Canyon 7/11
 9:45 P.
 1054
 hoo hoo hoo hoo — — —
 The first two slow the last two rapid
 Rucker 7/12
 8:15 A.
 1079
 Painted Redstart ♂ ~~10:00~~ song a rapid warbling
 bitter bitter bitter ree ree ree ree
 Mourning Dove Robin
 Gambel's Quail Baird's Wren
 Nighthawk Palmer's Thrasher
 Arizona Woodpecker Rky mtn Nuthatch
 Flicker Ant-eater w/ spk
 Black-chinned Hummer Arizona Jay
 Ark Kingbird Chipping
 Cassin's " Olive-backed Flycatcher
 Curve Flycatcher
 Wood Pecker
 Black Phoebe
 Scott's Oriole
 House Finch
 Mtn Towhee
 Canyon "
 Black-headed Grosbeak
 Wn Goldfinch
 Plumbeous Vireo
 Violet-green Swallow
 Dendroica myracina

Mouth Rucker Canyon 7/12
 Winkler. Parrots on Animas Mtn
 above Owl Creek. go in from Natchita, 4 M.
 Bennett & Winkler. seen in May.
 Columbus Jacintha ♂ ~~4:00 P.~~
 1080
 5:45 P.
 Palmer's Thrasher ♂ ~~109.7~~

Mtth Rucker Canyon 7/13
 Plumbrous Vireo ~~8:00 a~~
 Sylviolagus ~~9:00~~
~~9:10 a~~
~~9:20 a~~
~~9:30 a~~

Dragon Mts. 7/16/19

Sylviolagus ♂ ~~9:30 a~~ 9:45 a.
 Otis a cinereus ♀ ~~10:00 a~~
 Cyanocephalus latirostris ♂ ~~10:00 a~~ 10:15 a 10:30 a 10:40 a

- Buzzard
- White-winged Dove
- Mourning "
- Ant-eating Woodpecker
- Cactus "
- Woodhouse's Jay
- Arizona "
- Scott's Oriole
- Arizona " (Cowbird)
- Cowbird
- Canyon Towhee
- Phainopepla
- Baird's Wren
- Plumbrous Gnatcatcher
- Rock Wren
- Canyon "
- Bridled Titmouse
- Mockers
- Palmer's Thrasher
- Gambel's Quail
- Ark Kingbird
- Cassin "
- Wood Pewee

Gambel's Quail yg. tree tree tree
 low piping. I saw into oak &
 remained motionless on limb
 White wing nest yg. wet old
 on grapevine on oak. 10 feet from
 bottom of gulch.

df powder downs are common
 & are very in attracting prey
 why should they occur on hump
 or diffusel and why in artamus
 leptosomus etc.

Dragons 7/17/19
Parrot M. Wam.

Birds arrived dragons when peaches were ripe end of July, first of August remained weeks. one killed Ruffed up and down canyons. Had roost in mountains and flew from it out across flats presumably to mountains east to feed 200 or more. Very noisy. No damage to crops.

- *Aimophila r. scotti* ♂ 9:45a 110.2 ♂ 1:15p 109.4
- *Tyrannus vociferans* ♀ 11:00a 108.2
- *Geothlypis trichas* 10:15 107.6
- *Oryzobates arizonae* ♂ 10:30 108.10
- *Catherpes mexicanus* ♂ 11:15 109.2
- *Poliophtila c. obscura* ♂ 11:30a 108.2
- Bairds Wren 12:00 noon 108.2
- Ash-throated Flycatcher 12:00 noon 111.5
- Woodhouse's Jay 1:30p 108.7
- Buzzard
- Gambel's Quail
- White-winged Dove
- Mourning
- Poorwill
- Ark Kingbird
- Black-chinned Hummer
- Wood Pewee
- Scott's Oriole
- Arizona Oriole
- Arizona Jay
- House Finch
- Black-headed Grosbeak
- Mtn Towhee
- Canyon Towhee
- V. g. Swallow
- Plumbeous Vireo
- Least "
- Black-throated Warbler
- Canyon Wren
- Audubon's Woodpecker
- Cowbird
- Phainopepla
- Mocking
- California Thrasher

7/18/19 Dragon Mts Ariz

- *Amphispiza b. chaulei* 9:15 a. 11:00 a. 107.9 108.0
- *Melospiza a. trideani* 10:30 a. 107.2
- *Pyrocephalus r. mexicanus* 11:00 a. 108.1
- *Bubo l.* 11:00 a. 105.8
- *Pipilo j. megalonyx* 11:15 a. 108.0
- *Vireo* 12:00 noon 107.5
- *Palmer's Thrasher* 12:15 p. 112.8
- Buzzard
- Rufous Hummer
- Black-chinned "
- Broad-billed "
- Arizona Woodpecker
- Cactus "
- White-throated Swift
- Poorwill
- Cassin's Kingbird
- Ark - "
- Wood Pewee
- Say's Phoebe
- Mourning Dove
- Gambel's Quail
- Scott's Oriole
- Arizona "
- House Finch
- V. g. Swallow
- *Pyrocephalus*
- Cactus Wren
- Mockers
- Bridled Tit
- Ash-throated Flycatcher
- Woodhouse's Jay
- Ant-eating Woodpecker

Dragons 7/19

- Vermilion Flyc. whit whit whily see whily see
- *Icterus c. nelsoni* 9:30 a. 107.6
- *Poleioptila c. obscura* 9:30 a. 107.6
- Bush-tit 11:00 a. 107.4
- Scott's Oriole 12:15 p. 108.4 1:00 p. 108.2
- *Dendroica nigrescens* 12:45 p. 108.2
- Woodhouse Jay 1:45 p. 108.5
- Canyon Towhee 3:00 p. 107.6
- Arizona Jay 107.2
- White-winged Dove
- Mourning "
- Buzzard
- Gambel's Quail
- Arizona Woodpecker
- Cactus "
- Ant-eating "
- Broad-tailed Hummer
- Black-chinned "
- Cassin's Kingbird
- Ark - "
- Wood Pewee
- Say's Phoebe
- Black-headed Grosbeak
- House Finch
- Mtn Towhee
- Scott's Sparrow
- Black-throated Gray Warbler
- Baird's Wren
- Bridled Titmouse
- Palmer's Thrasher
- Mockers
- Cactus Wren
- Rock "
- Canyon "
- White-throated Swift
- Poorwill 1:00 p. 107.4
- Ash-throated Flycatcher

Barn owl flying over cottonfield
Camp Kelly, Texas 7/23

Chordeiles v. chapmani Roanoke La 7/24

Gray Kingbird

Common

Rehynings

U. S. Department of Agriculture

13 nights

19.50

12 days = 1

24.75

1 breakfast

75

MEMORANDUM

OF

TRAVELING EXPENSES

From May 15....., 191 9

To June 30....., 191 9

Use this Memorandum; it will assist
you in making up your account.
Retain for future reference. : : :

meals

June 9 supper

10 breakfast dinner

May 15

191

Dollars. Cents.

Breakfast ----- tip -----

Dinner ----- tip -----

Supper ----- tip -----

Lodging -----

Pullman porter -----

Waiter fees -----

Hotel porter -----

Station porter -----

Checking baggage -----

by Gr. 2pc.

1 00 ✓

baggage

05 ✓

W. Wash. B. & O. 8⁰⁰P.

2473301 Wash - Lawrence 36.71

" " " 7.50

May 30, 191

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner ----- tip -----		
Supper ----- tip -----		
Lodging-----		
Pullman porter -----		
Waiter fees-----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
L. Lawrence Rock Island 11:21 P.M.		
Q 473313 - Lawrence - Phoenix 46.89		
Q 473304 " - Memphis 8.25		

May 31, 191

	Dollars.	Cents.
Breakfast ----- tip -----		75
Dinner ----- tip -----		75
Supper ----- tip -----		75
Lodging-----		
Pullman porter -----		25
Waiter fees-----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		

-----, 191.-----

[illegible]

8-329

....., 191.....

[illegible]

8-829

June 15, 1911

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner <i>Phx</i> ----- tip -----		75 ✓
Supper ----- tip -----		90 ✓
Lodging -----		
Pullman porter -----		
Waiter fees -----		10 ✓
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Bed & bath</i>	38	00 ✓
<i>for Arlington 9:30 a.m.</i>		
<i>on Phx 11:30 a.m.</i>		
<i>Stage Phx</i>	4	50 ✓

June 14, 1911

	Dollars.	Cents.
Breakfast <i>Phx</i> ----- tip -----		60 ✓
Dinner <i>Challen</i> ----- tip -----	1	35 ✓
Supper <i>Phx</i> ----- tip -----	1	00 ✓
Lodging -----		
Pullman porter -----		
Waiter fees -----		10 ✓
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Auto hire</i>	11	00 ✓
<i>carfare</i>		10 ✓

June 22, 191

	Dollars.	Cents.
<i>en route</i>		
Breakfast : <i>1.05</i> tip <i>10</i>	<i>1</i>	<i>15</i> ✓
Dinner ----- tip -----	<i>1</i>	<i>00</i> ✓
Supper ----- tip -----		<i>75</i> ✓
Lodging -----	<i>4</i>	<i>00</i> ✓
Pullman porter ----- <i>Jason</i>		<i>10</i> ✓
Waiter fees -----		<i>10</i> ✓
Hotel porter -----		<i>10</i> ✓
Station porter -----		
Checking baggage -----		
<i>Lb. Plw 5:50 a.m.</i>		✓
<i>Ar. Manicopa 7:00 a.m.</i>		✓
<i>A 47330 Manicopa - Tucson</i>		✓
<i>Lb. Manicopa 7:25</i>		✓
<i>Ar. Tucson 11:30</i>		✓
<i>by tfr.</i>		<i>50</i> ✓

8-829

June 23, 191

	Dollars.	Cents.
Breakfast ----- tip -----		<i>65</i> ✓
Dinner ----- tip -----		<i>80</i> ✓
Supper ----- tip -----		<i>75</i> ✓
Lodging -----		
Pullman porter -----		
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>carfare</i>		<i>16</i> ✓
<i>luggage</i>	<i>1</i>	<i>65</i> ✓

8-829

Sonorensis ~~that~~ learned
to accommodate himself to
circumstances. Instead
of being restricted in range
to limited swamps and
rushes we find him inhabiting
the parks & small kept lawns
of the city where he sings
and postures from palms and
umbrella trees, or walks about
in the grass. A shower spraying
water now is a certain
attraction and he is always
called to his. His song is
unmistakably that of a whining
but many of his call notes are
deceptive. A Dickcissel like
call note or a rapid tee tee
tee tee would hardly be
identified by our familiar with
~~the whining~~ in their normal
swampy habitat.

U. S. Department of Agriculture

MEMORANDUM

OF

TRAVELING EXPENSES

From July 1 -----, 191 9

To -----, 191

Use this Memorandum; it will assist
you in making up your account.
Retain for future reference. : : :

-----, 191-----

[illegible]

July 2

191

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner ----- tip -----		
Supper <i>Paradise</i> ----- tip -----		60 ✓
Lodging -----		
Pullman porter -----		
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Left Piny Canyon 9:00 a.m.</i>		
<i>Arr. Paradise 6:00 P.m.</i>		
1 Parrot -----	2	00 ✓

July 3

191

	Dollars.	Cents.
Breakfast <i>Paradise</i> ----- tip -----		60 ✓
Dinner <i>Paradise</i> ----- tip -----		50 ✓
Supper ----- tip -----		
Lodging <i>Paradise</i> -----	1	00 ✓
Pullman porter -----		
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Le. Paradise 9:00 a.m.</i>		
<i>Arr. Piny Canyon 6:00 P.m.</i>		

July 12, 1911

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner ----- tip -----		
Supper <i>Rucker</i> ----- tip -----		50 ✓
Lodging <i>at male Hoasia</i> -----	6	00 ✓
Pullman porter -----	1	00
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Trans. Mouth Rucker</i> -----	2	00 ✓
<i>Lv. Hoasia 2:00 P. M.</i>		
<i>Arr. Rucker 4:30 P. M.</i>		

July 13, 1911

	Dollars.	Cents.
Breakfast <i>Rucker</i> ----- tip -----		50 ✓
Dinner <i>self, driver light</i> ----- tip -----	1	45 ✓
Supper <i>Pearce</i> ----- tip -----	1	00 ✓
Lodging -----		
Pullman porter -----		
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>Lv. Rucker 9:00 A. M.</i>		
<i>Arr. Pearce 9:30 P. M.</i>		
<i>Horser feed light</i> -----		75 ✓
<i>Trans.</i> -----	15	00 ✓
<i>Play</i> -----	1	25 ✓

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner ----- tip -----		
Supper <i>throughout</i> ----- tip -----	1	00
Lodging -----		
Pullman porter -----		10
Waiter fees -----		
Hotel porter -----		
<i>W. C. C. S. R. Station 2:15 P.M.</i>		
<i>Station porter 3:15 P.M.</i>		
<i>12 miles</i>		
Checking baggage -----		
<i>Board</i>	1	00
<i>Anti Pearce</i>	3	00
<i>175621 Pearce-Douglas 2-25</i>		
<i>lv. Pearce A.E. 8:10 P.M.</i>		
<i>Arr Douglas E.P.S.W. 8:10 P.M.</i>		
<i>fare to hotel</i>		05

8-829

[illegible]

8-829

July 26

8-829

191

8-829

-----, 191----

[illegible]

8-829

....., 191.---

[illegible]

8-829

-----, 191.-----

[illegible]

8-829

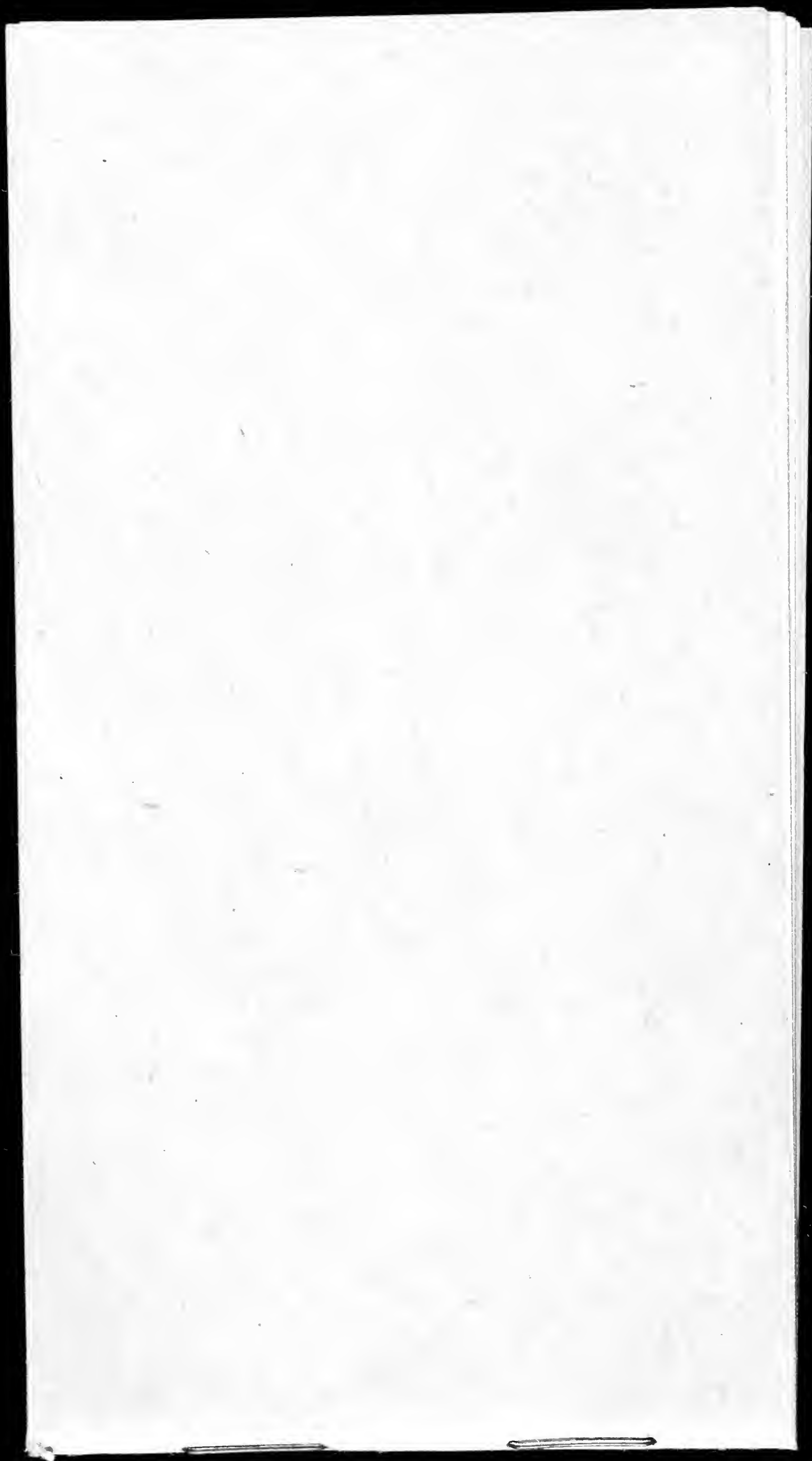
-----, 191.-----

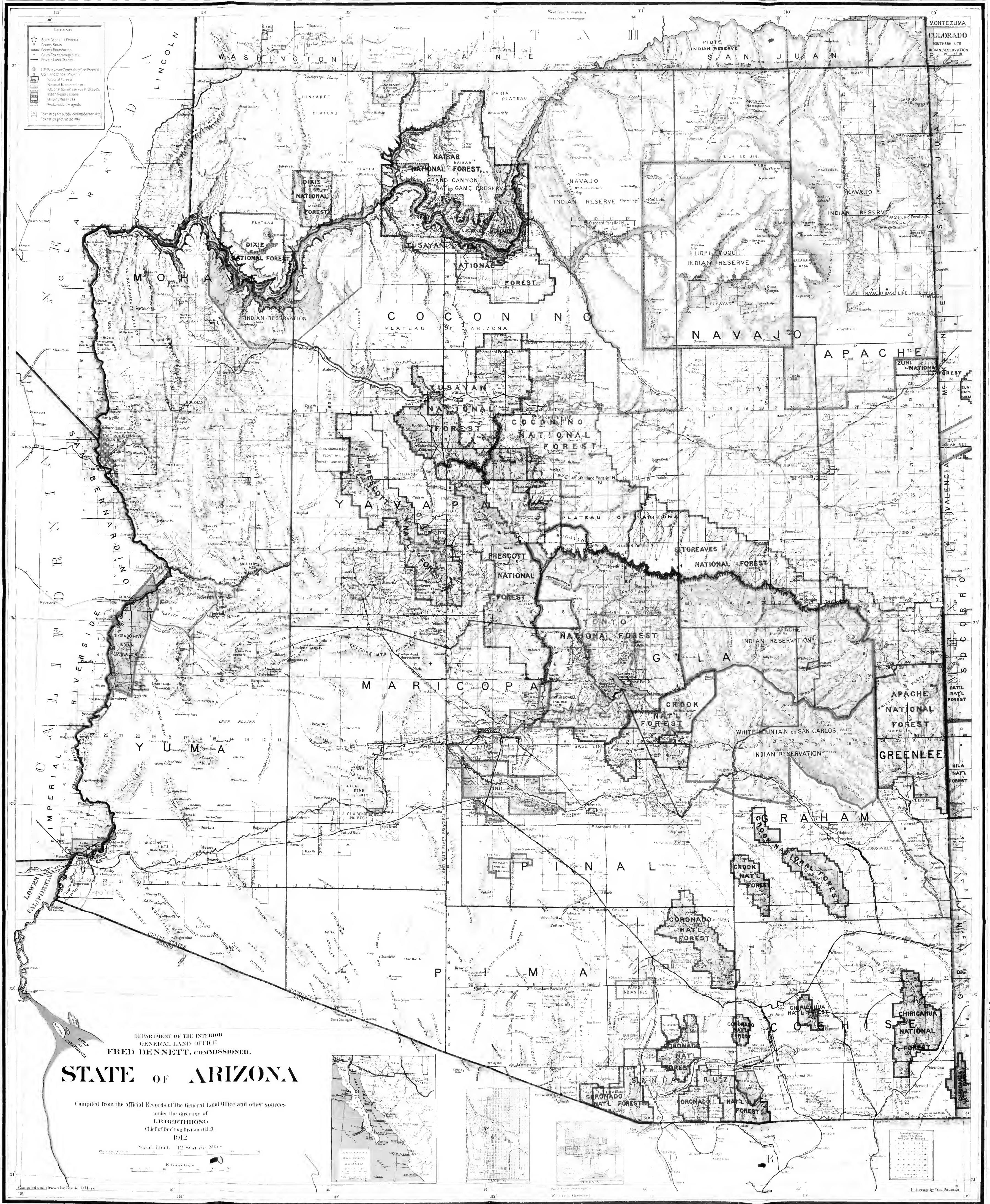
[illegible]

8-829

-----, 191.-----

	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner ----- tip -----		
Supper ----- tip -----		
Lodging -----		
Pullman porter -----		
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		





LEGEND

- State Capital (Phoenix)
- County Seats
- County Boundaries
- City Towns Villages etc.
- Private Land Grants
- US Surveyor General's Office (Phoenix)
- US Land Office (Phoenix)
- National Forests
- National Monuments
- National Game Preserves
- Indian Reservations
- Military Reserves
- Reclamation Projects
- Townships not subdivided into sections
- Townships protected only

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
FRED DENNETT, COMMISSIONER.

STATE OF ARIZONA

Compiled from the official Records of the General Land Office and other sources
under the direction of
L. B. BERTHROG
Chief of Drafting Division G.L.O.
1912

Scale: 1 inch = 12 Statute Miles

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